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SYRIA

Agricultural Sector Assessment

Volume 4

Agricultural Marketing Annex

U.S. Department of Agriculture
in cooperation with the
U.S. Agency for International Development
and the
State Planning Commission
Syrian Arab Republic

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Volume 4 Agricultural Marketing Annex

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PREFACE

As one of five volumes comprising the Final Report of the Agricultural Sector Assessment, this Annex contains the technical reports which relate to the marketing of agricultural commodities and inputs, including credit. The reports were prepared as part of a contract between the U.S. Department of Agriculture (USDA) and the Department of Agricultural Economics of Texas A&M University.

The specialists preparing the technical reports included the following: Ray V. Billingsley, Coordinator, Agricultural Economist; Carl E. Shafer, Demand Economist; Vito J. Blomo, Demand Analyst; Donald E. Farris, Crop Marketing Economist; Gregory M. Sullivan, Livestock Marketing Economist; John A. Hopkin, Agricultural Credit; John B. Penson, Jr., Macro Financial Economist; and Clair J. Nixon, Agricultural Input Economist.

Preliminary drafts of the technical reports were provided to the State Planning Commission (SPC) in September and October 1979. Revised drafts were reviewed by Committees established by the Prime Minister's Office in early 1980. The comments and corrections of these Committees are incorporated to the extent possible into this Final Report.

(Continued)

The Syrian Agricultural Sector Assessment Project was carried out by the Office of International Cooperation and Development, USDA, in cooperation with the U.S. Agency for International Development and the Syrian Arab Republic under PIO/T 276-005-2-80020. The participation of the Syrian Arab Republic was provided through the State Planning Commission of the Prime Minister's Office, under the general direction of Hisham Akhrass, Deputy Minister of State for Planning Affairs, SPC.

The Syrian Agricultural Sector Assessment Project was implemented under the supervision of the resident project staff which included: USDA - William A. Faught, Team Leader and Co-Director; Wendell M. McMillan, Policy Economist; and Calvin C. Boykin, Jr., Production Economist; and SPC - Said Halabi, Co-Director; and Nour Barmada, Assistant Co-Director, who was succeeded during the last six months by Raghad Sheik El-Ard. A complete listing of the many specialists and counterparts who participated in the project are listed in the Appendix to Volume I.

The Final Report of the Agricultural Sector Assessment contains the following five volumes:

Volume 1 - Summary Report

Volume 2 - Natural Resources Annex

Volume 3 - Agricultural Production Annex

Volume 4 - Agricultural Marketing Annex

Volume 5 - Human Resources and Agricultural Institutions Annex

June 1980

Syria: Agricultural Sector Assessment
Volume 4: Agricultural Marketing Annex

CHAPTER I
AGRICULTURAL TRENDS, DEMAND
AND PRICING POLICY

By

Carl E. Shafer and Vito J. Blomo

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1.0 INTRODUCTION

The purpose of this report is to (1) assess recent trends in Syrian agricultural production, prices, and trade in conjunction with SARG price policy objectives and the specific price policy tools which have been employed in the pursuit of such objectives and (2) provide projections of consumer demand for selected agricultural commodities to 1985 and 2000. The assessment is primarily to provide recommendations for consideration as the 5th five year plan is developed for 1980-85. Considerable further study would be necessary before specific operational suggestions could be made.

The assessment team conducted numerous interviews with SARG officials in an attempt to understand elements of the structure and operation of the agricultural marketing system to include the governmental institutions which own some and regulate much of the marketing system. The simultaneous ownership, operation, and regulation of the marketing system largely precludes the counterplay which one would find between private firms and between the private and public sectors in a more private market oriented economy. This situation tends to stifle useful critique of the government's activities, a fact which should be born in mind by those responsible for operating the state agricultural programs for Syria. Thus, SARG must be on guard, seeking beneficial self-critique through objective economic analyses if the economy and the Syrian people are to be served by the best possible planned economy.

All individuals contacted during the course of our assessment were most hospitable and helpful to our mission. We express our sincere appreciation to those persons who freely gave of their time during the interview sessions.

In addition to the interviews, public reports, studies, and data were examined for information regarding the agricultural sector. Most data are from the Central Bureau of Statistics (CBS), the Ministry of Agriculture and Agrarian Reform (MAAR), the Ministry of Supply and Domestic Trade (MSDT), and the State Planning Commission (SPC). Various general organizations and companies associated with public sector food and industrial agricultural commodity marketing also provided some information. The report is in five parts: 1. Price Policy: Goals and Considerations, 2. Price, Production, and Trade Trends, 3. Price Policy Appraisal, 4. Commodity Demand Projections, and 5. Recommendations.

It is important to note that this is an assessment of selected aspects of SAR's agricultural marketing and pricing system rather than a comprehensive in-depth analysis of the system. The assessment seeks to illuminate problem areas as well as areas of potential strength for further attention and exploitation in the 5-year plan.

1.1 Price Policy: Goals and Considerations

1.1.1 Price Policy Related Goals

The success of SARG's agricultural price policy can only be assessed with regard to a set of goals. The relevant goals were extracted from (1) the Fourth Five-Year Economic and Social Development Plan of the SAR 1976-1980, (2) a statement of the Baathist Party goals for agricultural development, and (3) a paper on agricultural prices and price policy by Hisham Ahkrass. Those

goals the authors believed to be related directly to price policy are:

- (1) To establish prices of agricultural products which will ensure stability for the productive farmer's income and directing agricultural production within the planned targets. (Price stability is implied.)
- (2) To mobilize rural manpower to fully utilize agricultural resources and develop the countryside in general. (Reducing migration from rural to urban area is implied.)
- (3) To achieve self-sufficiency in the production of main foodstuffs and commodities and to endeavor to achieve increasing rates of self-sufficiency in other commodities.
- (4) To improve the citizens' food standards and, in particular, the availability of animal proteins and increase production of fruit and vegetable crops at prices as free from inflation as possible.
- (5) To provide the requirements of domestic industry for agricultural raw materials for the production of the required quantities of manufactured goods.
- (6) To achieve a surplus for export in order to contribute to reducing the balance of trade deficit.
- (7) To achieve real increases in agricultural GNP of 8-10% per year.
- (8) To protect both producer and consumer against the domination of market middlemen reaping benefits unwarranted by their services.
- (9) To regulate the agricultural market through considerable public directed production and marketing activities but not necessarily to monopolize all stages of commodity production and marketing.

In addition to these somewhat general goals, the agriculture sector has had numerous specific productive and developmental objectives; e.g., increase cereal production by 58%, sugar beets by nine fold, meats by 80% and so on during the fourth five-year plan, [SARG].

Specific programs implemented to accomplish these goals and objectives include a new intensive agriculture plan which has been in effect since 1976 whereby production plans for each province are established by the High Committee in Agriculture with crop production licenses issued accordingly. Predetermined crop rotation patterns are compulsory. The government purchases major crops at support prices established by the Council. The marketing of important feed grain, food grain, and industrial crops is handled by specialized government agencies.

Regulations are issued for the domestic marketing of certain commodities including cereals. The government has price controls on most food items and issues family supply cards permitting specified quantities of sugar, rice, and cottonseed oil to be purchased at considerably less than free market prices. Flour is subsidized to bakeries and bread is sold at very low prices.

Government agencies handle practically all of Syria's agricultural imports and exports. For example, TAFCO, a specialized state trading company imports all rice and sugar, [USDA, 1978]. All prices in the agricultural sector are either fixed or administered by government agencies.

The orientation of the Syrian agricultural pricing policy has included the following characteristics:

- (1) Setting farm prices for products marketed by public or cooperative institutions.

- (2) Insuring cost-plus farm prices and use of premiums in accordance with attempts to influence production.
- (3) Maintaining the financial position of state marketing institutions insofar as possible.
- (4) Announcing prices before planting season.
- (5) Coordinating buying prices in all producing regions.
- (6) Establishing prices with regard to grade characteristics.
- (7) Considering the forces of supply and demand in fixing wholesale and retail prices for products marketed by the private sector.
Most such products are for direct consumption such as fresh fruits and vegetables, meat, eggs, and dairy products.
- (8) Basing selling prices of agricultural inputs on cost plus with only minimum profit or a subsidy to achieve low cost and stability.

Basically there are two types of price systems in Syria:

(1) A system of fixed prices set irrespective of supply and demand for all crops and inputs marketed by the state or the cooperatives. Cost of production, production goals for each crop and world prices are considered in fixing annual crop prices and subsidies. For example, domestic farm level cotton prices have been set at lower than world levels, providing substantial revenue to the state from cotton exports. In contrast, domestic sugar beet prices have been fixed at levels considerably higher than world prices while consumer sugar prices are lower than world consumer price levels. Nevertheless, sugar beet production has been difficult to increase. Cereals prices, except for lentils, have been raised annually, regardless of world prices, in order to increase production. Maize and soybean prices were set above world levels to encourage production for the rapidly growing poultry industry, and

(2) A semi-free pricing system where internal market forces of supply and demand, degree of competition and increasing consumer incomes are considered in setting prices.¹ Direct consumption items such as fresh fruits and vegetables, poultry, meat and dairy products are priced within this market oriented system.

The foregoing goals, objectives and brief discussion of price programs used by SARG make it abundantly clear that the state is responsible for the economic performance of agriculture, disregarding the undue influence of weather. The goals for SARG price policy seem generally reasonable except that self-sufficiency in all or most agricultural items seem uneconomic but may be thought necessary for security or other reasons. The emphasizing of sugar beet production at the expense of cotton may be an illustration of apparent economic misallocation due to the self-sufficiency goal. As indicated before, goals are subjective and must be taken as given. However, from a strictly economic standpoint, it would be useful to determine the product mix from the commodities with the highest comparative advantages for Syrian agriculture producing areas, given world markets and prices as guides to resource allocation in Syria. This is not to suggest

¹All prices are fixed or administered by law. Administered prices are those set by councils at the mohafazat level in accordance with their reading of supply and demand conditions.

that the previously mentioned goals should be abandoned but rather that the economic costs of the goals be understood vis-a-vis the "best" market opportunities for Syrian agricultural commodities at home and in world trade.

A disturbing trend suggested by our interviews was the tacit goal of the state to monopolize commodity subsectors in addition to the present cereal, cotton, and tobacco monopolies. The danger in removing viable private sector competition is the loss of a norm or standard against which to measure economic performance. The preferred method would be to maintain a significant volume of private enterprise activity in those commodity areas where it is possible to promote competition and economic efficiency. In some cases, such a norm is useful to evaluate the public sectors--assuming they are not so heavily subsidized that comparison becomes meaningless.

1.1.2 General Price Policy Considerations

The performance of specific major commodities in view of price goals and programs will be discussed in Section 1.2. However, it is important to note the constraints facing the Syrian agricultural economy as it works towards its goals as well as comment briefly on the uses of price policy in general. As to the constraints, small farm size, erratic rainfall, agricultural labor shortage, and a very high rate of population growth each challenge Syria's capacity to maintain its current level of self-sufficiency in agricultural production and provide profitable and stable prices to producers (including input subsidies), and low food prices to consumers.

Before proceeding with discussion of the general performance of individual commodity subsectors in Syria, as well as total agricultural production, it is desirable to consider some of the uses and limitations of price policy which are applicable in Syria.

The usual objectives of price policy include price stability which contributes to long-term income support for producers.¹ Price policy in developing countries has frequently been negative with farm prices kept low for consumers' benefit. Eventually, it must be recognized that a viable agriculture sector is vital to the state and that farm prices be supported rather than depressed. SARG has generally maintained farm prices at reasonable levels except possibly for cotton.

Use of price policy for encouraging agricultural output raises numerous implementation problems discussed by Krishna including: (1) which prices to support and at what levels, (2) geographic distribution of price supports, (3) assembly methods for supported crops, (4) availability of input supplies, and (5) the dangers of overplanning. Further, the question of increasing output and crop allocation by price support and/or input stabilization merits comment. Consumer issues on the demand side of the price policy equation and the regulation of intermediate prices (marketing margins) as occurs in Syria are also of interest. Last but not least is the question of who benefits and who pays for the subsidies--taxpayers, consumers, or producers--must be faced.

¹The 1.1.2 section draws extensively from Raj Krishna's chapter on "Agricultural Price Policy and Agricultural Development" in Agricultural Development and Economic Growth, H. M. Southworth and B. F. Johnston, Editors, Cornell University Press, 1967.

1.1.2.1 Commodities Supported and Suggested Price Levels

It is generally desirable to keep the number of commodities whose prices are supported as few as possible in order to reduce the heavy administrative burden of an effective price policy. Further, the more commodities whose prices are supported, the smaller the relative price increase for any individual commodity and the more complicated the interactions with other commodity markets.

Assuming that only a small number of commodities which are likely to be in short supply for some length of time will receive price supports, Krishna suggests that price guarantees are expected to work two ways. Price supports should encourage the farmer to (1) use current resources more effectively, and (2) adopt a package of improved inputs and cultural practices. The question of the level at which prices shall be supported is critical and three possibilities are considered: (1) cost of production, (2) parity, and (3) a moving average price. Intercrop price supports must also be considered. Any of these price setting methods could be used to establish floor prices but Krishna recommends the cost of production criteria. However, what cost of production should be used? He suggests the complete average cost of cultivation including neighborhood market values for family land and family labor. Whose average cost of production should be used? The average of a sample of farmers in a particular region? Or the minimum cost producers within the sample? Krishna opts for something called the estimated bulkine cost or the minimum cost which covers the actual average costs of farmers producing a major part of the output. The point is that accurate estimates of production costs are important if they are to be used as price floors. If the suggested crops are in excess demand, then market prices should generally equal or exceed the average cost of production price. In this case, the support price policy stabilizes prices, permitting farmers to plan production activities without fear of disastrously low prices.

Parity is the use of some index of prices paid by farmers as the price floor for a given commodity. If the price index is for production costs only, parity may approximate the above mentioned cost of production method. If consumer prices are included in the parity index, parity price support becomes more of an income redistribution tool and may be less effective in terms of increasing production or reallocating production among crops. That is, it becomes a cost of living type index rather than a production control device. Like cost of production, parity works only on the supply side and ignores demand.

The ruling-price criteria or moving average method links the fixed product price to a simple moving average of prices for recent periods. The advantage here is the reflection of demand when an excess supply situation occurs; i.e., prices would drop. On the other hand, if we are assuming an excess demand situation, then this method might place supports at unduly high levels. Prices would not be as stable under this method as with the cost of production method.

Intercrop price supports or considerations are important because of the interaction effects of support prices among crops. If market prices are usually above support prices, the price floor will not influence crop allocation. However, if price support levels are the prices received by farmers for the major crops then, of course, support prices directly affect land use and production. The latter is clearly the case in Syria where fixed

prices are the exchange prices or prices received by producers for major crops. The government is the primary marketer for cereals, sugar, coffee, tea, rice, sugar beets, cotton, tobacco, and peanuts. Wheat, barley, lentils, cotton, tobacco, sugar beets, and peanuts occupy approximately 75 percent of irrigated hectares and 90 percent of rainfed hectares. Thus, the government is not only setting specific prices for the dominant crops but marketing them as well. If the state were simply supporting prices at modest levels there would be some reflection of demand from the markets involved but such is not the case for these crops. So far, apparently only lentils have provided a surplus problem for SARG at fixed prices. If excess supply situations at fixed prices began to occur frequently, this would be a signal that both actual and relative fixed price levels were maladjusted. Further, price incentives may have to be very high to reallocated some cropping patterns at the margin; e.g., to get more sugar beets.

Price support in SARG has followed the cost of production criteria, not only as a floor price but as the only price for major crops. Cereals prices were lower than world prices before 1974 but higher since that time. Cotton prices received by producers have frequently been less than world prices, providing a margin of profit for the state. Sugar beet prices have clearly been support prices.

Operating a completely administered pricing program as opposed to price floors for a few major items removes the direct influence of world or even domestic supply/demand forces. To date the only major maladjustment is probably the cotton vs. sugar beets situation. Price policies have reportedly encouraged sugar beets, a major import crop, at the relative expense of cotton, the major export crop.

1.1.2.2 Setting Prices Geographically

Turning to the establishment of geographic prices, Krishna argues that price floors should be the same at all points throughout the country but differentiated by levels in the marketing system if desired. This is the case for Syria; for example, the fixed price for wheat is the same at all mohafazat centers. No differentiation in price is allowed for some remote market areas within the mohafazats except that large farmers must pay delivery costs.

There are two main reasons for equating prices among geographic marketing points throughout the country. First, it is very difficult to establish a geographically differentiated pricing system which would reflect the ". . . extremely complex pattern of internal commodity movement" within a country. Second, the uniform geographic price structure will motivate marginal shifts from high cost to low cost production areas--"assuming that the government resolutely maintains internal free trade in agricultural commodities. Restriction on the internal movements of goods are highly irrational and should never find a place in any rational commodity policy." (Italics added). Krishna's point regarding the flexibility of internal trade and geographic reallocation of production seems relevant for the SAR because some major crops are not allowed to move freely among mohafazats and production targets are allocated by regions. As cultural and technological production practices change it seems important to permit crop production patterns and actual commodities to move within the country in response to prices.

If the fixed price is to be obtained by producers, the government should buy as close as possible to the production level--directly from the grower if possible and in unprocessed form. SARG seems to be accomplishing this function. Even purchasing processed produce at mohafazat centers through agents can facilitate the objectives of the program if sufficient competition exists so that margins and transportation costs are reasonable. However, if monopoly is found to exist in processing and marketing, the government can foster competition by initiating processing and marketing of its own and encouraging additional private businesses. SARG has apparently moved well beyond this stage and is now in danger of too little private sector activity.

1.1.2.3 Availability of Input Supplies

If a growth oriented price support program is to prove effective in increasing production rather than simply raising prices, then supplies of inputs such as fertilizers, pesticides, seed, equipment, knowledge, and credit must be readily available. Further, a growth oriented support price should remain in effect at least 3-5 years in order to motivate producers to adopt the desired cultural practices. The price levels can, of course, be altered at the end of the initial period if excess supply is evident.

1.1.2.4 Danger of Overplanning

Krishna and the sector assessment team caution against the pitfalls of overplanning. Theoretically, a system of equations for all relevant crop targets and input prices could be solved for the desired set of product prices. However, this is quite unlikely to be accomplished in practice. Policymakers should content themselves with the modest support of a few major crops, hoping to reduce the excess demand gaps for those crops. Again, the team believes that SARG is too much involved in the marketing side of the food and fiber activities because of their desire to restrain exploitive private middlemen. However, SARG does not necessarily need much of the market to effect such an outcome. Further, excessive government activity may result in higher costs because of the difficulty in administering the complexity of the market; i.e., the matching of prices with quantities produced and consumed (supplied and demanded) during the seasons, year-in and year-out is an extremely difficult task and usually results in shortages or surpluses if strictly enforced. Fortunately, while SARG has established a significant number of marketing requirements, they do not attempt rigid enforcement. Thus, a lot of adjustment does in fact take place at prices other than those set by SARG. No one knows how much price flexibility actually exists. It is presumably well known that significant volumes of commodities are "traded" with Lebanon, Jordan, and Turkey when Syria's prices are significantly different from prices in Syria's large border expanses with other countries make it difficult, if not impossible, to prevent such activity. For example, tobacco organization people estimated that 20 percent of their cigarette sales are lost to smuggled Marlboros and other brands which they do not handle. The present policy of setting prices but tolerating considerable actual price adjustment and inter-country flow of products is probably preferred by the Syrian populace over rigid enforcement of government marketing regulations. The current situation provides definite guidelines but does not straight-jacket the pricing-supply-demand system.

1.1.2.5 Price Support Versus Input Subsidies

All previous discussion has referred to stimulating and reallocating production using product price supports. Alternatively, production may be stimulated by subsidizing inputs. Why use input subsidies? Peasants may not necessarily increase production in response to higher product prices but rather spend the extra income on consumption. However, the peasant benefits from subsidized inputs in direct proportion to their use. Subsidized inputs also avoid raising product prices, and hence, food costs to the consumer. Krishna argues that both supported product prices and subsidized inputs are desirable for different reasons. Note that the more inputs are subsidized, the lower "cost-based product prices" can be.

Krishna cites four reasons why the same production response cannot be obtained through input price subsidies as by product price support. First, peasants not familiar with improved inputs will be hesitant to employ them even if subsidized. Thus, product prices are the best means to initiate a program for increasing production. Further, even when producers willingly employ new as well as traditional inputs, their continued use depends on whether costs are covered by guaranteed product prices. Second, peasants need insurance against falling product prices more than insurance against rising input costs which may be a small part of total costs. Third, product price guarantees motivate better use of traditional as well as improved inputs. It is difficult to subsidize the use of family labor and land which are major cost items. Only fertilizer, pesticides, implements, irrigation, and credit which account for a part of costs can be subsidized. Fourth, input price subsidies do not discriminate as well among products as the use of specific product price guarantees to induce output changes.

Research on U.S. farm response to product support prices suggests consumers got more than their tax money back in lower food prices in the long run.

1.1.2.6 Some Consumer Price Considerations

Consumer prices must also be protected in conjunction with the State's price support program to increase and allocate crop/livestock production. Syria protects consumer prices with price ceilings, rationing for rice, sugar, and vegetable oils and possibly the lowest bread prices in the world. The two-price rationing policy for rice, sugar, and vegetable oils and low priced bread subsidize the well-to-do and the poor alike if the well-to-do are willing to accept the inconvenience. Meat prices are set for Damascus consumers and such action is being contemplated for Aleppo. SARG attempts to restrain price movements for other food and a number of non-food items. Alternative policies could include allocating ration cards or food stamps only to low income people, letting others pay the full-cost prices while getting higher quality and greater variety. The team was frequently told of the difficulties of determining who is "low income". Nevertheless, at least for bread, some type of two-price rationing scheme might be considered due to the probability of bread waste occurring at current low prices. Surely it is not a secret that many discriminating consumers buy the higher priced bread from Lebanon. The question again arises as to whether SARG must dominate marketing activities

in order to accomplish their producer and consumer price goals. Krishna advocates a stock-and-relief policy whereby the government employs stock accumulation and release to support producer prices and yet maintain consumer prices of some items below full cost. Some subsidy cost would still be incurred but the government would not have to operate the current physical marketing apparatus nor plan for expansion in marketing. Modest government participation in the market can have the desired influence on the private sector's marketing of the remainder. This point should be treated as a technical problem concerning how to obtain the best performance from the SAR agriculture production/food marketing sector.

1.1.2.7 Marketing Margins and Intermediate Price Regulation

The simultaneous establishing of producer price floors and consumer price ceilings would seem to solve the problem of the exploitive middlemen or merchant if such prices could be enforced. Krishna reports that while many feel that agricultural marketing in developing countries is monopolistic, little evidence of such activity actually exists. If there are exploitive monopoly elements in marketing, one solution is to promote competition by modest government marketing activity while encouraging more private firms to enter the suspect area. Certainly some reasonable evidence of adverse market performance should be established before government enters the arena. Even then there is no need for government to dominate marketing but rather to serve as an alternative to exploitive marketers; i.e., not replace them. If there are undue profits in the market sector, others should be willing to enter the business if encouraged by government policies. Excess profits should exist only where barriers to entry exist and/or information is poor. The State can directly improve both of these conditions if it wishes. There is little evidence to suggest that government run marketing operations can compete effectively with competitive private agencies unless government is subsidizing its own operations.

As to the point of establishing both retail and wholesale prices and, therefore, fixing margins for commodities passing through the market, such is practically impossible because of the dynamics of marketing. Marketing costs vary with (a) distance, (b) storage period, and (c) the amount of processing. These elements of marketing cost vary widely among different crops and livestock products and for the same commodity at different times and locations. The concern about monopolies and speculative gain within the marketing system can be dealt with by appropriate action by the state; keep the market in line by supplying part of the market at a reasonable price and keeping the wholesale price reasonable with counter-market purchase and release activities. Speculative gain can also be dealt with by counter-market operations and providing timely economic forecasts. At any rate, it is almost certain that attempts to regulate marketing costs are not working in Syria except possibly for the fully monopolized crops and products. It was reported that even major crops cross country boundaries in some volume in response to interstate price differences. Flour is a tempting resale item at the low subsidized price. Meat prices in Damascus result in losses to the government due to the inability to control the price of sheep at the producer level, etc.

1.1.2.8 Who Pays the Subsidies

A theoretical perfectly free market has no subsidies, duties or tariffs to restrain production or consumption. However, subsidies and/or taxes are frequently desirable in order to promote "justice" in the market place or for other social goals.

First, there is the problem of determining the (1) extent of the subsidies within the SARG food and fiber production-marketing system and (2) beneficiaries. Second, it should be determined who pays the subsidies. Bread, sugar, rice, and vegetable oils are all subsidized to some extent and there may be several other commodities subsidized indirectly. All consumers of these items benefit from these subsidies. The extent of the cost of the subsidies is not clear. Some 600 million S.P. are allocated in the state budget for price support activities but the bread program alone frequently uses this much or more in direct costs due to the price difference between wheat and flour.

The cost of the subsidies is born by those providing revenue for the state budget. No detailed examination of the budget was made. If most revenue were from income and rent taxes, then the wealthier citizens would be paying disproportionately for the subsidies and this may be judged as desirable income redistributing effect. As we had difficulty in ascertaining the subsidies for several of SARG's production-marketing operations, we suggest that these figures be compiled annually so as to better assess the cost/benefits of the various programs. Further, only with a full disclosure of subsidy costs, including operating subsidies in addition to price subsidies, can the state evaluate the economic success of its economic and social programs.

In summary, the foregoing discussion on price policy considerations are extremely relevant to SARG's agricultural policy. It is important that SARG officials consider these points as they plan for increased government activities in order to accomplish the stated goals of the 5-year plans. Land reform is being accomplished without the government owning and operating all of the land. Similarly, the government can greatly influence the marketing system without dominating that system.

Planning requires large amounts of data and analyses on economic performance. As indicated in the recommendations, SARG needs a full-time economic staff charged with the responsibility of evaluating the performance of public and private marketing operations to complement the great amount of work dedicated to planning.

1.2 PRICES, PRODUCTION, AND TRADE TRENDS

In this section trends in (a) agricultural prices at the farm, wholesale, and retail levels, (b) agricultural production, and (c) agricultural trade are discussed. The scope of the discussion includes agriculture in general and a review of each major commodity or groups of commodities as regards to price stability, inflation, self-sufficiency, and price policy implications.

1.2.1 Agricultural Sector

Retail prices for all foodstuffs in 1977 have risen to almost 300% their level from the 1962 base year, or an average compound rate of increase of 7.5 percent per annum (Table 1.1). Retail price increases were much lower in the 1962-72 period (3.4 percent increase per year) than the 1972-77 period when the price index more than doubled, increasing at a compound rate of 16 percent annually. Thus, there are two distinct periods of inflation, the slower period during 1962-72 and the more rapid period during 1973-77.

Retail food prices rose faster in Aleppo than Damascus during the 1968-74 period; but beginning in 1975 prices in Damascus increased more rapidly. Food prices have consistently been above the general Consumer Price Index in both Aleppo and Damascus, thus commanding a greater share of the consumer's expenditures (Table 1.1).

Similarly, the Wholesale Price Index for all foodstuffs has been consistently higher than the Wholesale Price Index for all commodities (Tables 1.1, 1.2). Agricultural raw materials, commodities which would require further processing, experienced the lowest annual price increases. Price stability and lack of inflationary pressures appear to have been acceptable during the 1962-72 period; the 1973-77 period reflects greater price variability and inflationary pressure. As there are no indices of prices for agricultural commodities at the farm level, the Wholesale Price Index for agricultural raw materials was used as a proxy.

Total agricultural production in Syria has been on a positive trend, particularly since 1960 (Table 1.3 and Figure 1.1). The varying production patterns are due mainly to rainfall conditions. The years 1958-60 represent a time of severe drought and in 1961, despite greater precipitation, there was a decrease from normal yields.

Agricultural production per capita reveals a very different situation than total production. Until 1960 agricultural production per capita was erratic, probably due to weather and, possibly, political conditions. From 1960 to 1965 per capita production rose substantially and averaged approximately 105 during 1962-65. However, from 1966 until 1977 the production per capita index only once surpassed the level of the base year and averaged only 81 percent of the 1956 level. Since agricultural exports are relatively minor to agricultural production in this period, and there is agreement that the Syrian diet has improved, this deficiency in domestic production must have been supplemented by large imports due to Syria's ever increasing population (Table 1.4).

Comparisons with other Arab countries (Table 1.5) indicate that growth in Syrian food and total agricultural production has consistently been below the average of most Arab countries. While economic, social, political, and

Table 1.1

Consumer Price Index, Wholesale Price Index and Consumer
Price Index for Foodstuffs, Damascus and Aleppo, 1968-77 (1962 = 100)

Year	Consumer Price Index		Wholesale Price Index	Consumer Price Index Foodstuffs	
	Damascus	Aleppo		Aleppo	Damascus
	- - - - - 1962 = 100 - - - - -				
1977	268	261	256	282	306
1976	240	235	235	256	271
1975	209	208	209	229	244
1974	192	180	195	207	191
1973	156	164	171	175	166
1972	130	137	129	144	136
1971	129	131	136	139	136
1970	123	126	123	130	131
1969	118	119	115	123	126
1968	126	125	117	125	125

Source: (Central Bureau of Statistics) Statistical Abstract of Syria, various issues
1968-78.

Table 1.2

Wholesale Price Index for Selected Food and Agricultural Items, 1966-77 (1962 = 100)

Year	Flour & Cereals	Dry Legumes	Meat	Fats & Oils	Fruit Seeds, Roots	All Food Stuff	Agriculture Raw Materials
1977	276	379	478	335	242	281	217
1976	264	321	425	241	222	254	201
1975	226	294	328	197	208	218	187
1974	215	314	305	184	184	205	176
1973	220	245	221	172	173	196	136
1972	135	163	180	160	139	137	114
1971	180	159	145	172	138	157	106
1970	140	152	137	124	122	139	104
1969	121	135	135	124	112	120	103
1968	128	132	138	124	108	122	108
1967	140	136	133	120	115	132	105
1966	112	143	113	117	113	115	101

Source: (Central Bureau of Statistics) Statistical Abstract for Syria, various issues 1966-1978.

Table 1.3

Indices of Total Agricultural Production
For Syria, 1952-77 (1956 = 100)

Year	Index of Agricultural Production	Index of Agricultural Production Per Capita ^a
- - - - - 1956 = 100 - - - - -		
1977	174	87
1976	209	109
1975	171	92
1974	164	92
1973	99	63
1972	150	85
1971	107	67
1970	104	66
1969	138	91
1968	103	70
1967	124	87
1966	99	72
1965	136	102
1964	137	106
1963	127	101
1962	130	107
1961	86	73
1960	68	60
1959	77	70
1958	76	71
1957	107	104
1956	100	100
1955	76	79
1954	97	103
1953	86	95
1952	77	88

^aThe index of agricultural production per capita is based on the mid-year population estimates published in the annual Statistical Abstract.

Source: (Central Bureau of Statistics), Statistical Abstract of Syria, various issues 1955-78.

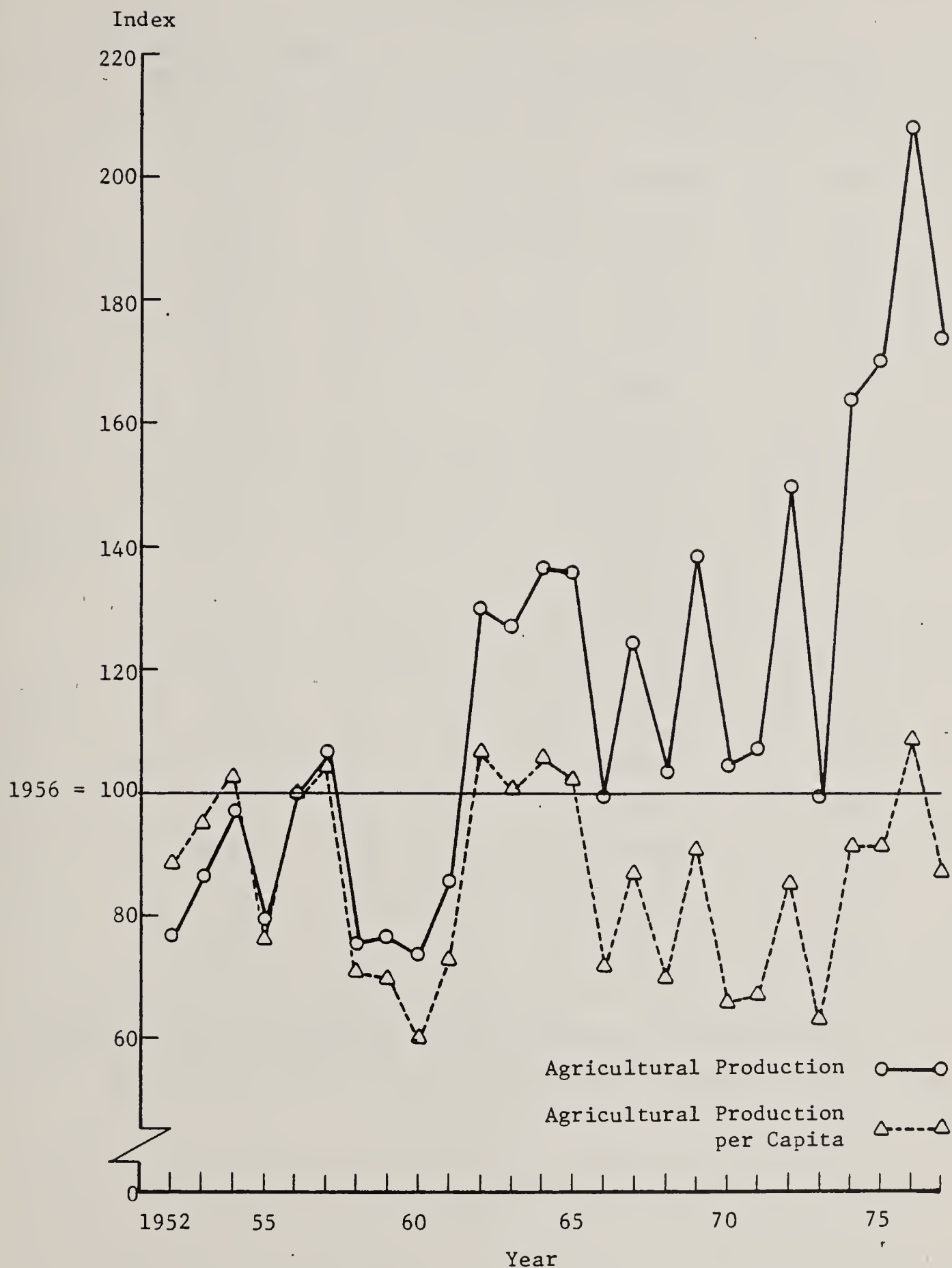


Figure 1.1 Index of agricultural production; total and per capita, Syria, 1952-77.

Source: Central Bureau of Statistics, Statistical Abstract, 1959-78.

Table 1.4

Total Population and Index of Population
In Syria, 1960 - 2000

Population in Syria (Sept.)		Index of Population In Syria
		1956 = 100
2000	17085000 (Proj.)	424
1985	10781000 (Proj.)	268
1978	8316693	207
1977	8009142	199
1976	7712964	192
1975	7438000	185
1974	7240365	180
1973	6994170	174
1972	6756346	168
1971	6526610	162
1970	6304685	157
1969	6130729	152
1968	5956772	148
1967	5782816	144
1966	5608859	139
1965	5434903	135
1964	5260946	131
1963	5086990	126
1962	4913034	122
1961	4739077	118
1960	4565121	113

Source: Syrian Agricultural Assessment Project and State Planning Commission.

Table 1.5

Indices of Agricultural Production in Arab Countries,
1967 - 1975, (1963 = 100)

Country	Food								
	1967	1968	1969	1970	1971	1972	1973	1974	1975
Algeria	85	102	94	100	106	99	92	92	85
Egypt	105	118	119	122	126	129	130	132	137
Libya	148	155	142	141	145	258	268	256	264
Morocco	106	148	120	133	144	141	120	145	127
Sudan	127	112	134	139	145	146	149	167	177
Tunisia	81	87	82	97	119	121	125	132	152
Iraq	128	155	143	136	126	186	135	147	137
S.A.R.	105	94	107	80	92	138	77	137	143
Average	111	121	118	118	125	152	137	151	152

Country	All Commodities								
	1967	1968	1969	1970	1971	1972	1973	1974	1975
Algeria	86	103	95	101	107	100	94	93	86
Egypt	104	116	120	121	125	126	128	127	130
Libya	145	152	140	141	145	245	260	245	253
Morocco	106	147	120	138	143	147	128	151	134
Sudan	127	113	135	140	145	147	146	165	174
Tunisia	82	88	83	98	120	123	126	133	154
Iraq	130	156	145	139	128	185	137	148	139
S.A.R.	103	96	106	85	96	132	84	132	135
Average	110	121	118	120	126	151	138	149	151

Source: (Central Bureau of Statistics), Statistical Abstract for Syria, various 1967-1975.

natural resource conditions vary greatly among these Arab countries, relative changes over the nine-year period provide general perspective.

Total plant production in Syria has varied greatly from year-to-year (Table 1.6 and Figure 1.2). Animal production exhibits less year-to-year variation but appears cyclical, (Table 1.6 and Figure 1.3). Total animal production increased substantially in the 1970's while production per capita generally lagged behind the 1964-65 level. Rising real incomes for Syrian consumers have created upward pressures on prices and elicited a demand for food imports to satisfy food needs and/or dampen price pressures.¹

Agricultural products are very important in Syria's trade situation (Table 1.7). Agricultural exports, whose value has been increasing since 1970, account for a substantial portion of the value of total exports. However, the value of agricultural imports has increased much more rapidly than exports; in fact, the average growth in import value between 1970/71 and 1976/77 was 19% per annum, compared with an average 14% annum for the value of agricultural exports. As surmised above, agricultural imports must have supplemented domestic production if the Syrian diet has actually improved. This is evident in the fact that in the eight-year period 1970-77, five years registered a considerable trade deficit (Table 1.7).

Among major commodity groups (in total value and as an index of quantities), only the value of imported live animals and of meat and meat preparations has stabilized or decreased (Table 1.8). Imported values of all other commodity groups, especially dairy and eggs, fruits and vegetables, cereals, and sugar increased substantially during 1970-77. In terms of quantities imported, only live animals and oil seeds, oil nuts, and oil kernels have shown a significant decrease; all other commodity groups have either increased greatly or were at the same level in 1977 as in 1970 (Table 1.9).

Agricultural exports indicate a mixed picture. "Food and live animals" exports showed no trend in value with various commodities either increased in value (fruits and vegetables, cotton) or decreased in value (live animals, animal feed, oils and fats), (Table 1.10). Indices of quantities exported indicate that every commodity group except (a) dairy and eggs and (b) fruits and vegetables have either remained stable or decline (Table 1.11).

The import-export situation can also be examined as the trade balance among commodity groups (Table 1.12). The trade deficit in 1977 for the overall group of food and live animals was five times larger than in 1970. Every commodity group except (a) textile fibers and (b) oil seed and oil nuts has had a trade deficit. In terms of production self-sufficiency (Table 1.13) only potatoes and eggs appear to be gaining; all other commodities show either no trend (wheat, maize, vegetables, fruits) or greater reliance on imports (tobacco and sugar). Domestic production and imports are increasing for most items.

In summary, agricultural production in Syria has grown in response to increased demand from both population pressure and greater real incomes per capita, as well as price support programs. However, domestic production

¹GDP per capita in constant 1963 prices increased by 61 percent between 1965/66 and 1975/77; i.e. 4.87 percent per year.

Table 1.6

Indices of Plant and Animal Production for Syria,
1953-77 (1956 = 100)

Year	Plant Production		Animal Production	
	Total	Per Capita	Total	Per Capita
- - - - - 1956 = 100 - - - - -				
1977	189	95	202	101
1976	245	128	198	103
1975	196	106	171	92
1974	209	116	120	66
1973	101	58	131	75
1972	197	117	91	54
1971	125	77	100	62
1970	100	64	121	77
1969	128	84	131	86
1968	110	74	132	89
1967	126	87	126	87
1966	89	64	136	98
1965	133	99	147	109
1964	138	105	132	101
1963	129	102	119	94
1962	144	118	78	64
1961	94	80	57	48
1960	72	64	56	49
1959	79	68	68	59
1958	74	67	78	71
1957	119	115	95	92
1956	100	100	100	100
1955	63	65	88	90
1954	101	107	93	98
1953	86	95	92	101

Source: (Central Bureau of Statistics), Statistical Abstract for Syria, various issues 1955-78.

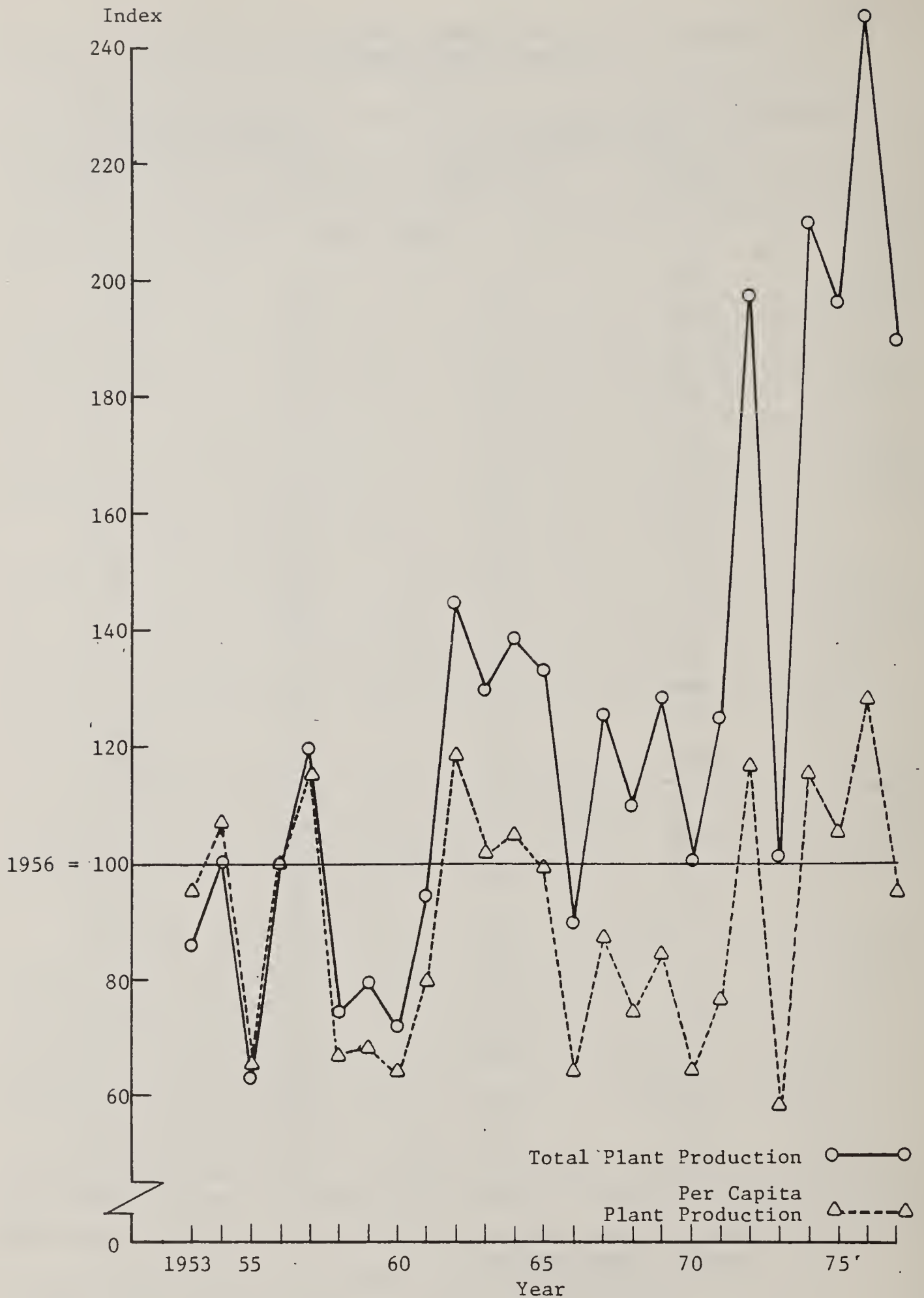


Figure 1.2 Index of plant production; total and per capita, Syria, 1953-77.

Source: Central Bureau of Statistics, Statistical Abstract, 1959-78.

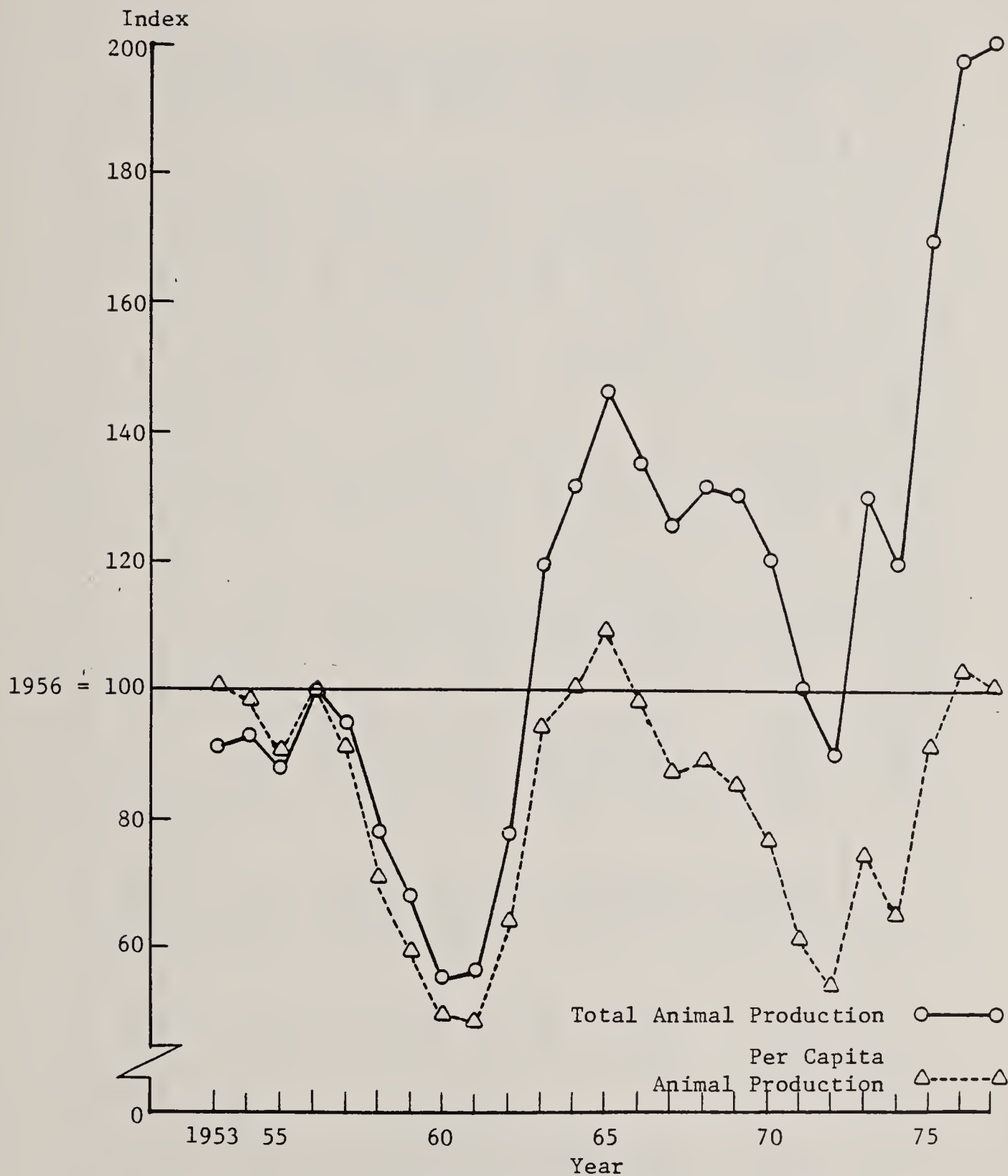


Figure 1.3 Index of animal production; total and per capita, Syria, 1953-77.

Source: Central Bureau of Statistics, Statistical Abstract, 1959-78.

Table 1.7

Value of Import, Export, and Trade Balance of Syria, Total and Agricultural Products,
in Current Syrian Pounds, 1970-77^a

Years	Total Exports	Agri. Exports	% Ag./ Total	Total Imports	Agri. Imports	% Ag./ Total	Total Trade Balance	Agri. Trade Balance	% Ag. Total
1	2	2÷1	3	4	4÷3	1-2	2-3	1-2÷2-3	
-----Thousand L.S.-----									
1977	4199022	1260853	30.0	10496686	1645001	15.7	-6297664	-384148	6.1
1976	4141319	1041625	25.1	7694573	1530839	19.9	-3553254	-489214	13.8
1975	3440914	753085	21.9	6172728	1528955	24.8	-2731814	-775870	28.4
1974	2913960	1069788	36.7	4570879	1612969	35.3	-1656919	-543181	32.8
1973	1341276	830887	61.9	2342068	762610	32.6	-1000792	68277	-
1972	1097601	749060	68.2	2060648	608525	29.5	- 963047	140535	-
1971	743353	475174	63.9	1674365	672153	40.1	- 931012	-195291	21.0
1970	775343	556659	71.8	1365609	454002	33.2	- 590266	102657	-

^a Agriculture includes food and live animals; beverages and tobacco; crude materials; inedible products except fuel and metals; animal and vegetable oils and fats.

Source: (Central Bureau of Statistics), Statistics of Foreign Trade of Syria, issues 1970-1977.

Table 1.8

Value of Imports of Agricultural Products of Syria,
in Current Syrian Pounds, 1970-77

Item	1970	1971	1972	1973	1974	1975	1976	1977
	-----Thousand L.S.-----							
Food & Live Animals	353133	563942	467517	558404	1170133	1114453	1053078	1124339
Live Animals	13088	13417	21913	20847	29771	25419	8220	10741
Meat & Meat Preparations	3381	6454	4467	8331	76330	31001	8582	13538
Dairy & Eggs	24821	54366	56175	76817	94602	103878	180746	207936
Cereals & Cereal Preparations	169100	264653	130135	121244	376331	295578	219900	334133
Fruit & Vegetables	62955	81907	85645	106881	130203	130668	205510	240271
Sugar & Honey Preparations	41315	103908	116026	142774	367491	441181	319802	149877
Animal Feed	3067	6258	9006	14890	19259	19973	27144	51074
Tobacco	12799	11698	23982	35082	76419	150439	203969	62502
Oil Seeds, Oil Nuts	945	3264	2278	7458	110334	1179	10999	8792
Textile Fibres	24340	21079	31045	44125	58158	76230	48603	62102
Animal & Vegetable Oils & Fats	5297	23055	20751	16230	31906	47124	40379	63783

Source: (Central Bureau of Statistics), Statistics of the Foreign Trade of Syria, issues 1970-1977.

Table 1.9

Index of Quantities Imported to Syria, 1966-77 (1970 = 100)

Item	1966	1967	1968	1969	1971	1972	1973	1974	1975	1976	1977
	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	1970 = 100	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -
Food & Live Animals	70	56	77	65	135	93	89	111	96	100	128
Live Animals	117	73	137	157	82	106	99	77	42	25	22
Meat & Meat Preparations	107	78	68	50	153	79	222	745	381	95	173
Dairy & Eggs	33	41	88	85	148	147	163	172	134	205	246
Cereals & Cereal Preparations	58	37	59	29	138	68	31	60	59	41	87
Fruit & Vegetable	96	97	106	96	129	114	144	158	140	187	203
Sugar, Preparations & Honey	52	74	57	86	184	129	129	144	126	156	107
Animal Feed	70	48	53	175	167	226	345	283	583	559	1157
Tobacco	19	28	49	39	84	51	110	271	615	755	232
Oil Seeds, Oil Nuts	74	55	121	57	78	86	20	2	2	-	2
Textile Fibers	73	73	89	92	81	99	96	87	133	88	96
Animal & Vegetable Oils & Fats	133	133	198	183	241	223	159	169	276	207	133

Source: (Central Bureau of Statistics), Statistics of Foreign Trade of Syria, issues 1970-1977.

Table 1.10

Value of Exports of Syrian Agricultural Products,
in Current Syrian Pounds, 1970-77

Item	1970	1971	1972	1973	1974	1975	1976	1977
	-----Thousand L.S.-----							
Food & Live Animals	176279	90320	258432	181888	98943	88213	151014	205336
Live Animals	70474	24932	59808	50051	12086	12544	3422	4565
Meat & Meat Preparations	583	554	506	269	104	45	429	224
Dairy & Eggs	2670	797	1990	994	937	1586	1885	1812
Cereals & Cereal Preparations	22585	365	95751	47610	2988	1468	36958	60494
Fruit & Vegetables	31231	47253	60441	46780	50354	55474	81447	119563
Sugar & Honey Preparations	747	1177	2027	2008	2042	3544	6421	7733
Animal Feed	21489	12282	31742	9905	10631	4416	9213	2983
Tobacco	17614	13956	20303	45069	66898	81548	93183	19069
Oil Seeds & Oil Nuts	7359	8940	12393	9678	7139	8161	9085	14590
Textile Fibres	330738	344253	425979	539533	785123	480546	686697	901912
Oils & Fats	10844	3194	159	230	587	1202	1317	1884

Source: (Central Bureau of Statistics), Statistics of the Foreign Trade of Syria, issues 1970-1977.

Table 1.11

Index of Quantities Exported from Syria, 1966-77 (1970 = 100)

Item	1966	1967	1968	1969	1971	1972	1973	1974	1975	1976	1977
	-	-	-	-	-	-1970 = 100	-	-	-	-	-
Food & Live Animals	109	119	136	155	50	85	46	33	36	27	44
Live Animals	144	99	161	142	33	59	47	11	17	3	2
Meat & Meat Preparations	485	186	265	59	101	90	51	9	7	73	55
Dairy & Eggs	177	231	169	142	13	15	26	143	117	173	215
Cereals & Cereal Preparations	10	19	59	153	-0-	21	3	0.1	-	37	71
Fruit & Vegetables	140	248	227	270	168	196	73	106	115	96	149
Sugar, Preparations & Honey	-	-	-	-	-	-	-	-	-	-	-
Animal Feed	150	97	110	149	45	97	26	21	12	16	4
Tobacco	10	23	35	37	66	77	36	47	83	68	27
Oil Seeds, Oil Nuts	101	96	118	191	117	128	98	47	48	65	99
Textile Fibers	122	85	75	92	90	91	93	84	76	88	92
Animal & Vegetable Oils & Fats	176	98	119	84	27	-0-	-0-	-	7	17	-

Source: (Central Bureau of Statistics), Statistics of the Foreign Trade of Syria, issues 1970-1977.

Table 1.12

Value of Trade Balance of Agricultural Products in Syria,
in Current Syrian Pounds, 1970-77

Item	1970	1971	1972	1973	1974	1975	1976	1977
	-----Thousand L.S.-----							
Food & Live Animals	-176854	-473622	-209085	-376516	-1071191	-1026240	-902064	-919003
Live Animals	57386	11515	37895	29204	- 17685	- 12875	- 4798	- 6176
Meat & Meat Preparations	- 2798	- 5900	- 3961	- 8062	- 76226	- 30956	- 8153	- 13314
Dairy & Eggs	- 22151	- 53569	- 54185	- 75823	- 93665	- 102292	-178861	-206124
Cereals & Cereal Preparations	-146515	-264288	- 34384	- 73634	- 373343	- 294110	-182942	-273639
Fruit & Vegetable	- 31724	- 34654	- 25204	- 60101	- 79849	- 75194	-124063	-120708
Sugar & Honey Preparations	- 40568	-102731	-113999	-140766	- 365449	- 437637	-313381	-142144
Animal Feed	18422	5754	22736	- 4985	- 8628	- 15557	- 17931	- 48091
Tobacco	4815	2258	- 3679	9987	- 9521	- 68891	-110786	- 43433
Oil Seeds & Oil Nuts	6414	5676	10115	2220	- 103195	6982	- 1914	5798
Textile Fibres	306398	323174	394934	495408	726965	404316	638094	839810
Animal & Vegetable Oils & Fats	5547	- 19861	- 20592	- 16000	- 31319	- 45922	- 39062	- 61899

Source: (Central Bureau of Statistics), Statistics of the Foreign Trade of Syria, issues 1970-1977.

Table 1.13

Imports of Agricultural Products (Thou. M.T.) as a Percentage of Domestic Production for Syria, 1961-77.

Year	Wheat	Rice ^a	Barley	Maize	Potatoes	Sugar	Tobacco	Dairy	All Vegetables	All Fruits	Eggs
						Percent					
1977	37.6		0	22.6	8.7	950	13.9	4.3	3.1	27.4	4.2
1976	10.5		0	44.1	4.0	657	51.7	3.2	3.0	30.5	6.6
1975	18.2		0	48.1	7.4	738	41.7	2.0	2.3	25.7	7.9
1974	13.4		4.8	2.1	13.7	1250	33.0	3.2	3.8	30.4	24.6
1973	20.0		0	30.7	9.2	1122	11.8	4.4	5.3	50.3	24.9
1972	19.9		0.4	16.0	15.3	442	12.1	3.4	1.5	28.1	51.9
1971	88.5		29.2	37.5	20.3	678	10.7	3.4	3.6	40.3	46.3
1970	86.8		24.6	10.0	16.5	n.a	18.2	1.8	5.3	35.5	28.5
1969	14.2		0	1.1	17.2	n.a	5.5	1.4	2.2	27.1	21.5
1968	51.2		0	86.3	17.0	n.a	11.3	1.0	2.2	32.6	14.0
1967	15.4		1.6	2.2	38.7	n.a	5.0	0.6	3.0	30.5	6.6
1966	50.7		0	110.0	23.0	n.a	3.1	0.5	9.1	27.9	1.8
1965	6.0		0	84.3	-	n.a	-	0.6	3.8	32.9	0.7
1964	0.4		0	35.7	-	n.a	-	0.7	4.2	39.3	0.7
1963	0.7		0	4.3	-	n.a	-				
1962	18.6		2.6	101.0	-	n.a	-				
1961	24.6		3.4	165.7	-	n.a.	-				

^aAll rice imported during 1961-1977.Source: (Central Bureau of Statistics), Statistical Abstract for domestic production, and Statistics of the Foreign Trade of Syria for quantities of imports, various issues 1964-78.

has not been able to satisfy consumer demand as evidenced by (1) upward pressures on food prices at the wholesale and retail levels, and (2) ever-increasing food imports and trade deficits, resulting in little, if any progress in achieving self-sufficiency. In the following sections each major commodity or group of commodities is discussed relative to the issues above.

1.2.2 Cereals

Cereals are the main staple in the Syrian diet. Government policy is to assure (1) adequate total supplies for consumption and (2) reasonable prices for producers and consumers.

1.2.2.1 Wheat

Of the cereals group, wheat is by far the most important commodity. Domestic production is generally trending upward with large annual fluctuations due to changing climatic conditions (Figure 1.4). Because of frequent shortfalls in domestic production, sizable imports have been secured to provide supplies for consumption¹ (disappearance) at levels necessary to assure relatively stable per capita levels with the exception of 1973. Wheat imports continue to provide a significant share of Syria's consumption.

The price policy for wheat may well be increasing production although it has generated substantial subsidy costs to the government. Farm prices for wheat have more than doubled since 1967 (Table 1.14), thus increasing wheat farmers' income and encouraging more production (see Appendix Table A1 for price/hectares harvested correspondence). At the retail level, the prices of wheat, cereals, and related products have been very stable. Deflating these prices by the general Consumer Price Index indicates they have actually been declining in real terms (Tables 1.15-1.17). Cereals and related products represent seven to ten percent of the Price Index. The farm price for wheat has been greater than the retail price of the most inexpensive bread since 1973. Price increases at the wholesale level for wheat, flour, and cereals dramatically illustrate the difference between retail prices and wholesale prices (Tables 1.16-1.19). This difference is subsidized by the government. The table below indicates the annual amounts paid to the flour mills since 1975 to make up the difference between the cost of producing flour and the price bakeries are charged.

Year	Subsidy
1975	294 million L.S.
1976	331 million L.S.
1977	379 million L.S.
1978	400+ million L.S. (prelim.)
1979	500+ million L.S. (projected)

Source: General Company for Cereals

¹This figure does not account for seed, waste, or any change in the stocks of wheat. The disappearance estimates used herein are derived by adding production, imports, and stocks and subtracting exports.

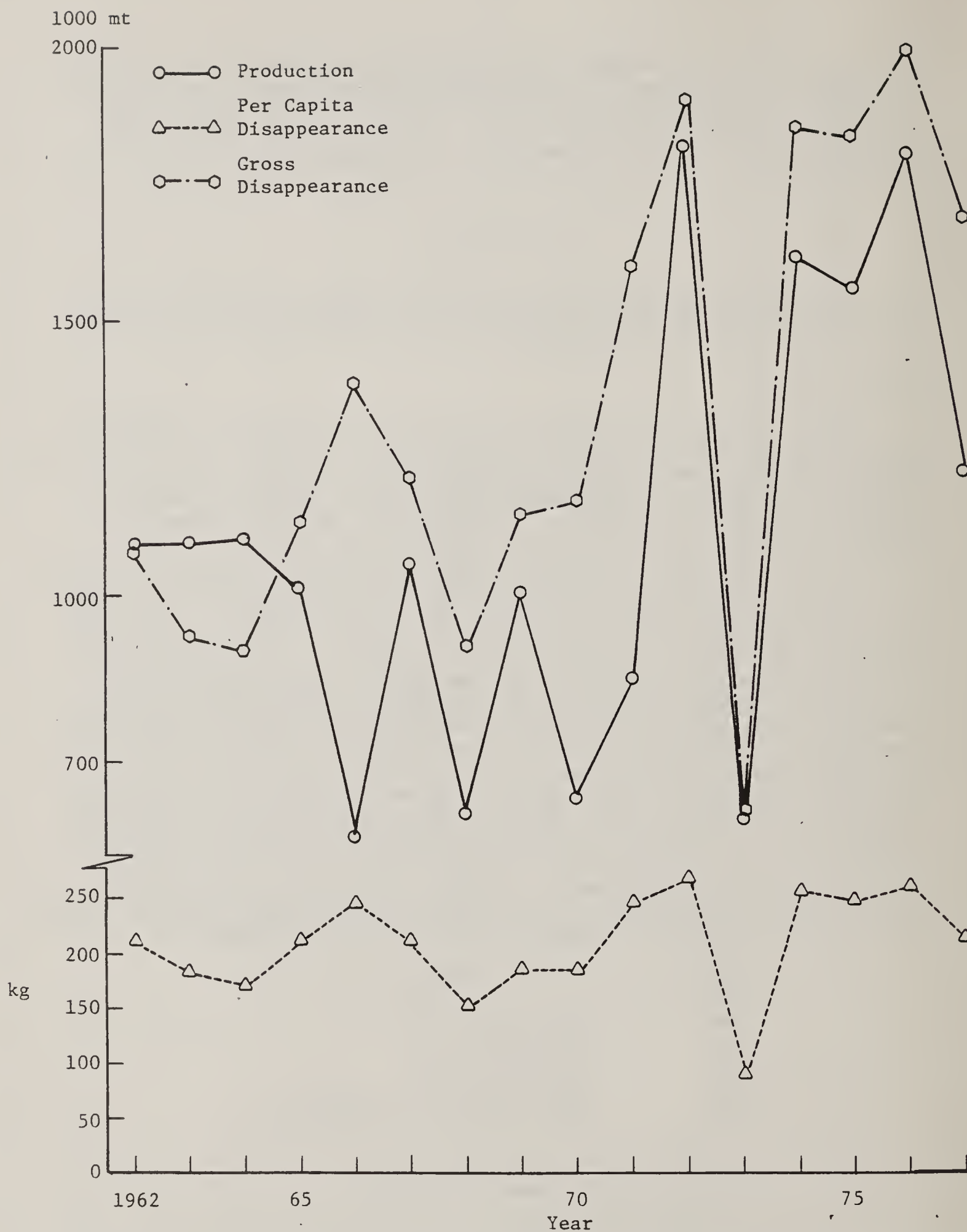


Figure 1.4 Production and gross and per capita wheat disappearance, Syria, 1962-77.

Source: Appendix Table A39.

Table 1.14

Government Supported Farm Prices for Selected Agricultural Commodities In Syria,
in Current Syrian Pounds, 1965 - 1978^a

Year	Wheat		Barley		Lentils (Red)	Chick Peas	Seed Cotton	Peanuts (Red)	Sugar Beet
	Soft	Hard	Black	White	Piasters/KG-				--Pounds/Ton
1978	64	69	50	51	80	160	183	180	150
1977	60	63	44	45	100	100	170	160	145
1976	50	52	40	41	125	100	145	150	140
1975	50	52	40	41	115	-	135	150	140
1974	44	46	35	35	60	-	115	120	130
1973	37	38	28	28	50	-	90	85	88
1972	32	33	23	23	44	-	84	-	70
1971	27	30	18	18	40	-	80	-	-
1970	30	30	13	13	45	-	80	-	-
1969	29	30	15	16	36	-	80	-	-
1968	29	30	15	16	-	-	80	-	-
1967	28	29	19	21	-	-	78	-	-
1966	n.a	n.a	n.a	n.a	-	-	75	-	-
1965	n.a	n.a	n.a	n.a	-	-	76	-	-

^aDoes not include bonus for early delivery.

Source: Ministry of Agriculture and Agrarian Reform, Price Division.

Table 1.15

Consumer Price Index for Selected Food Items in Damascus and Aleppo, 1968-77 (1962 = 100)

Year	Cereals & Related Products		Dried Legumes		Meat, Fish Eggs		Oils		Sugar & Sweets		Milk & Dairy		Vegetables		Fruits	
	A	D	A	D	A	D	A	D	A	D	A	D	A	D	A	D
	----- 1962 = 100 -----															
1977	169	184	296	331	385	355	272	319	196	222	295	315	313	454	378	412
1976	165	163	263	251	358	334	247	307	194	208	249	255	279	367	304	339
1975	166	167	303	264	297	295	227	229	170	197	232	233	213	232	321	300
1974	166	162	306	277	295	244	194	184	151	122	227	215	153	176	241	224
1973	159	156	215	197	201	169	171	168	125	115	199	195	171	190	227	203
1972	120	171	113	111	174	136	159	163	103	102	169	164	135	149	190	184
1971	125	120	131	121	145	124	156	159	103	101	164	169	140	150	165	151
1970	125	123	139	126	136	125	114	134	119	118	131	128	121	150	168	166
1969	121	120	138	108	130	116	112	130	118	118	134	122	106	149	141	156
1968	126	123	139	103	136	123	111	118	117	118	134	120	101	145	137	147

A - Aleppo

D - Damascus

Source: (Central Bureau of Statistics), Statistical Abstract of Syria, various issues 1968-78.

Table 1.16

Retail Cereal and Legume Prices in Damascus in current Syrian Piasters, 1963-77.

Year	White/Bran Bread	White Barley	Flour	Lentils, red 1st grade	Broad Beans	Dry Beans	Chick Peas
	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -
1977	55/35		125	160	166	217	227
1976	55/35			150	147	195	115
1975	55/35	52	85	135	152	185	93
1974	55/35	56	85	147	155	185	113
1973	55/35	52	72	103	122	169	125
1972	55/35	26	53	44	85	145	127
1971	- /35	41		51	98	149	115
1970	- /35	36	53	56	88	91	99
1969	- /35	-	-	65	85	86	58
1968	- /35	-	-	57	75	100	59
1967	- /32	-	-	60	78	93	63
1966	- /30	-	-	64	79	108	70
1965		-	-	-	-	-	-
1964		-	-	-	-	-	-
1963	35/-	-	-	-	-	-	-

33

Source: (Central Bureau of Statistics), Statistical Abstract of Syria, various issues 1971-77.

Table 1.17

Retail Cereal and Legume Prices in Aleppo in Current Syrian Pounds, 1963-77.

Year	White/Bran Bread	White Barley	Flour	Lentils red, 1st grade	Broad Beans	Dry Beans	Chick Peas
	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -
1977	55/35			152	165	197	213
1976	55/35			140	152	195	123
1975	55/35	51	88	121	140	198	90
1974	55/35	52	92	121	139	186	102
1973	55/35	52	79	94	113	158	126
1972	55/35	32	53	47	71	156	136
1971	55/35	44	-	55	70	170	117
1970	55/35	33	55	70	73	100	82
1969	55/35	-	-	74	69	97	51
1968	55/35	-	-	59	68	99	57
1967	55/32	-	-	69	63	100	64
1966	55/30	-	-	64	65	89	65
1965	-	-	-	-	-	-	-
1964	-	-	-	-	-	-	-
1963	35/-	-	-	-	-	-	-

Source: (Central Bureau of Statistics), Statistical Abstract for Syria, various issues 1963-1977.

Table 1.18

Wholesale Cereal and Legume Prices in Damascus in Current Syrian Pounds, 1963-77

Year	1st Grade Wheat	Farka Flour	Lentils, Red, 1st Grade	Broad Beans	Dry Beans	Chick Peas	White Barley
	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -
1977	70	100	140	152	177	185	65
1976	69	-	125	133	176	95	60
1975	60	65	117	128	175	85	50
1974	53	71	137	140	175	96	45
1973	54	67	95	107	134	114	50
1972	35	50	41	71	134	117	25
1971	46	50	43	84	141	102	39
1970	41	50	44	78	83	87	32
1969	33	-	57	76	81	51	16
1968	33	-	51	67	96	47	17
1967	37	-	46	67	78	55	28
1966	33	-	54	68	79	62	24
1965	-	-	-	-	-	-	-
1964	-	-	-	-	-	-	-
1963	23	-	-	23	-	-	18

Source: (Central Bureau of Statistics), Statistical Abstract of Syria, various issues 1965-77.

Table 1.19

Wholesale Cereal and Legume Prices in Aleppo in Current Syrian Pounds, 1963-77

Year	1st Grade Wheat	Farka Flour	Lentils, Red, 1st Grade	Broad Beans	Dry Beans	Chick Peas	White Barley
	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -
			Piaster/KG				
1977	65		132	135	173	178	60
1976	63		118	132	173	98	58
1975	57	75	105	113	176	72	44
1974	54	81	93	118	171	84	47
1973	52	72	89	90	135	114	49
1972	34	51	36	56	142	124	25
1971	45	51	44	57	129	101	39
1970	39	51	59	63	84	72	29
1969	33	-	64	64	77	43	16
1968	36	-	48	48	84	42	16
1967	43	-	52	47	85	48	28
1966	28	-	50	54	81	48	23
1965	-	-	-	-	-	-	-
1964	-	-	-	-	-	-	-
1963	23	31	-	37	-	-	15

Source: (Central Bureau of Statistics), Statistical Abstract of Syria, various issues 1965-77.

The subsidy cost situation has been exacerbated by the fact that while world cereals prices have declined since 1974 (Appendix Table A3), farm cereal prices in Syria have steadily increased and now exceed world levels significantly. A continuation of the present price policy, in conjunction with the self-sufficiency goal, would tend to increase the subsidy.

The policy of equalizing retail prices among all mohafazats creates an income transfer from low income areas like Deir Ezor to higher income areas like Damascus. However, differentiating bread prices among mohafazats would encourage smuggling.

1.2.2.2 Barley

Barley is the principal feed grain for livestock and poultry. A review of production and gross disappearance¹ indicates no discernible trend for either measure (Figure 1.5). Until the mid-1960's Syria was a net exporter of barley (production greater than disappearance in Figure 1.5) to Western Europe. However, the advent of higher and variable tariffs and lower quotas by the EEC effectively shut out Syrian barley from this market [Ramazani, p. 25]. Syria appears to be self-sufficient for its current barley needs in that imports have been negligible since 1961.

The lack of a clear positive trend for barley production does not portend well for an increase in livestock and poultry production. This lack of trend exists despite increasing barley prices (Table 1.14). Hectares response to higher prices is not apparent except possibly for 1975-77 (Appendix Table A1). Some of the lack of direct price response is due to barley being priced at a disadvantage relative to wheat. This lack of price response points up a basic problem in the administered pricing scheme, particularly when prices are fixed before planting. The problem is that the total area of wheat and barley plantings may be more influenced by weather than price. Despite the announcement of prices, wheat and barley plantings are reduced for a given area if rainfall in October/November is not adequate. If rainfall in January is not adequate the next planting alternative, legumes, are reduced. Finally, if rainfall in March/April is not adequate, then plantings of other grains--millet and sorghum--are reduced. Thus, despite planning, weather may ultimately have a greater impact on supply than the planned price. The vagaries of weather present a formidable problem in planning for adequate cereal supplies.

Barley prices at the three marketing levels (Tables 1.14, 1.16-1.19) exhibit an upward trend. Unlike wheat, Syrian barley prices have remained below the world levels (Appendix Table A3); thus exports would generate a monetary surplus for the exporting authority (Cereals Bureau). The spread between wholesale and retail prices indicates that a subsidy would be required because the difference does not appear to cover the marketing costs. Subsidies appear necessary between the farm and wholesale levels. In 1978, the Cereals Bureau reported buying black barley at 530 L.S./metric ton and selling it for 500 L.S./metric ton despite a 158 L.S./metric ton cost for handling, storage, interest costs, etc.

¹ Hereafter, gross disappearance refers to production plus imports plus changes in stocks minus exports and does not account for waste or seed.

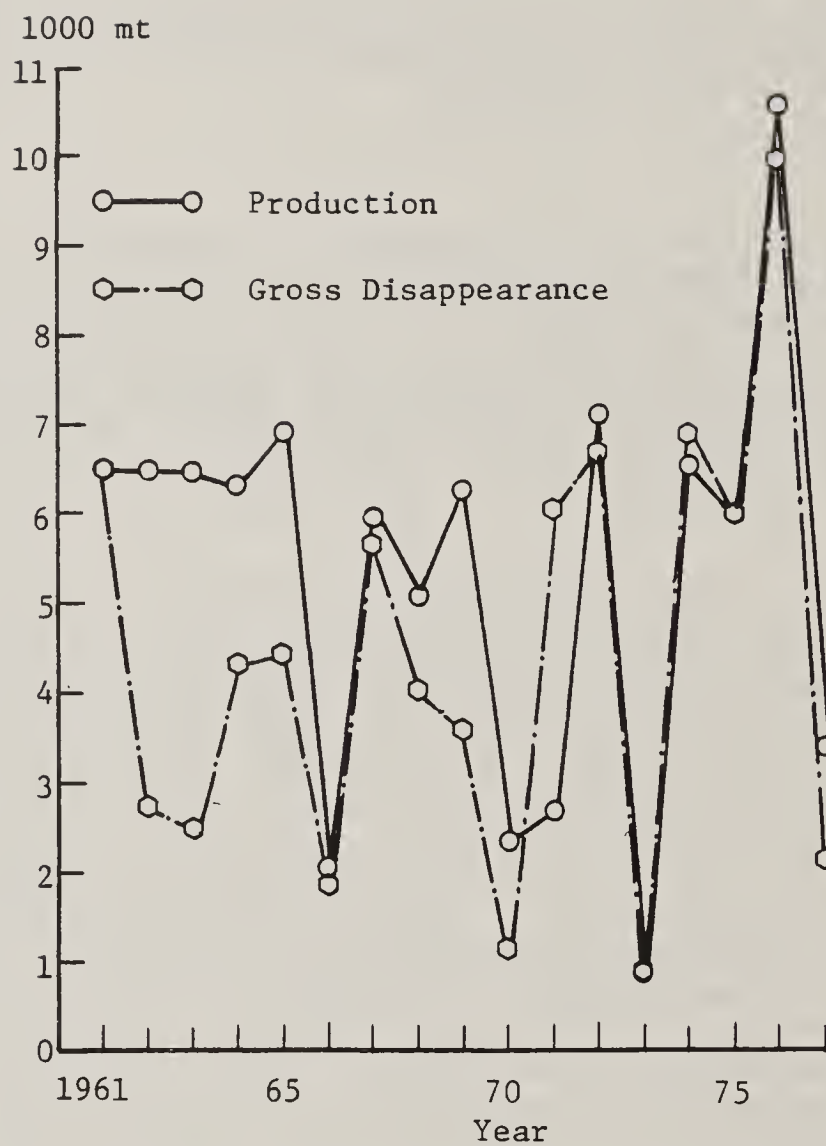


Figure 1.5 Production and gross disappearance of barley, Syria, 1961-77.

Source: Appendix Table A41.

Thus, a subsidy would have been at least 188 L.S. for every metric ton the Cereals Bureau purchases.

1.2.2.3 Maize

Maize is fed primarily to poultry. The significant increases in maize production (Figure 1.6) parallel the increase in poultry and egg consumption. Syria is now self-sufficient in poultry because of increasing domestic production. The performance of the poultry industry should generate more demand for maize, hence justifying higher production. Greater imports of maize may be economical if the poultry industry continues to expand.

1.2.2.4 Rice

Almost all rice consumed in Syria is imported. Because rice is such a heavy user of scarce water resources, government policy is to issue a few permits as possible to grow rice in preference to other crops. The per capita disappearance indicates a 6.7 kg average consumption for 1964-77, excluding 1974¹, Figure 7. Total disappearance is rising due to an increasing population, holding per capita consumption to 6-7 kg as it has been since 1964.

Since 1973, when cereal prices rose sharply, government policy has been to insure a "normal" amount of rice to consumers at subsidized prices. If consumers wish to consume more they may do so at a higher price. Retail and wholesale rice prices from 1963-72 rose an average of 2.3 per year (Table 1.20). However, the price increase from 1972-1973 was 81% at retail and 85% at the wholesale level. Thus, to insure price stability and an adequate consumer supply, a voucher system was established whereby consumers could purchase 750 grams per month per capita at the (1972) voucher price. Purchases in excess of the voucher amount are subject to a higher price.

Since 1973 market and voucher prices at the wholesale and retail levels have been constant; thus, taking inflation into account, real rice prices have been decreasing. According to the Planning Directorate in the Ministry of Supply and Internal Trade, projected disappearance for 1979 will be 98,000 metric tons. Using the 215 piaster/kg imported cost of rice, the 1979 population, per capita voucher allowance and 1978 prices, the following subsidy is projected for 1979:

210.7 million S.P. cost for 98,000 M.T.
- 51.8 million S.P. voucher sales of 6,477 M.T.
- 132.7 million S.P. market sales of 91,522 M.T.
<u>26.2 million S.P. loss²</u>

1.2.2.5 Legumes

Legumes and pulses are another cereal component which provides an important part of the Syrian diet. This group of commodities includes

¹The average normal consumption in 1974 may have been due to large purchases of rice to offset an anticipated poor wheat crop following a bad year in 1973.

²More recent information put the planned rice subsidy at 114 million S.P.

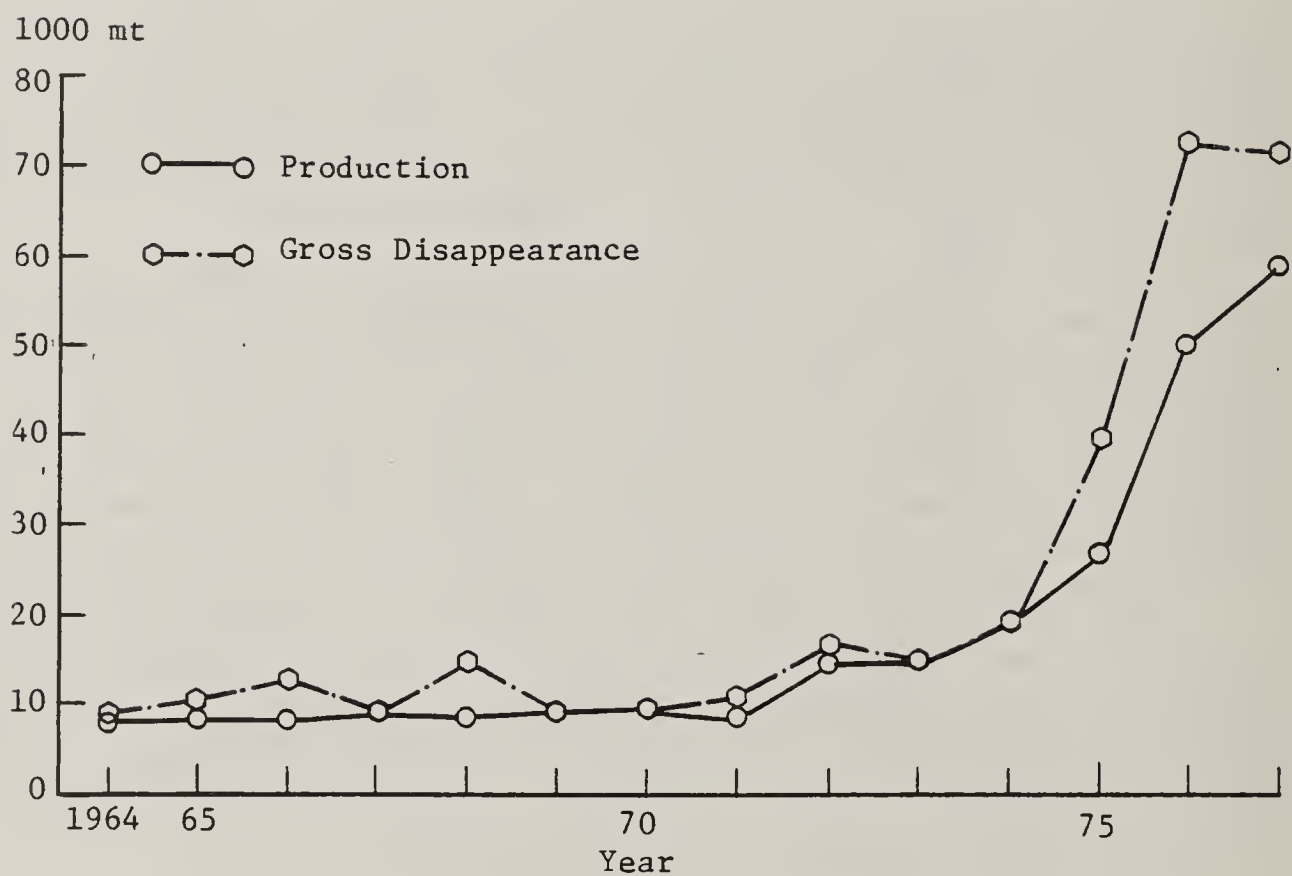


Figure 1.6 Production and gross disappearance of maize, Syria, 1964-77.

Source: Appendix Table A42.

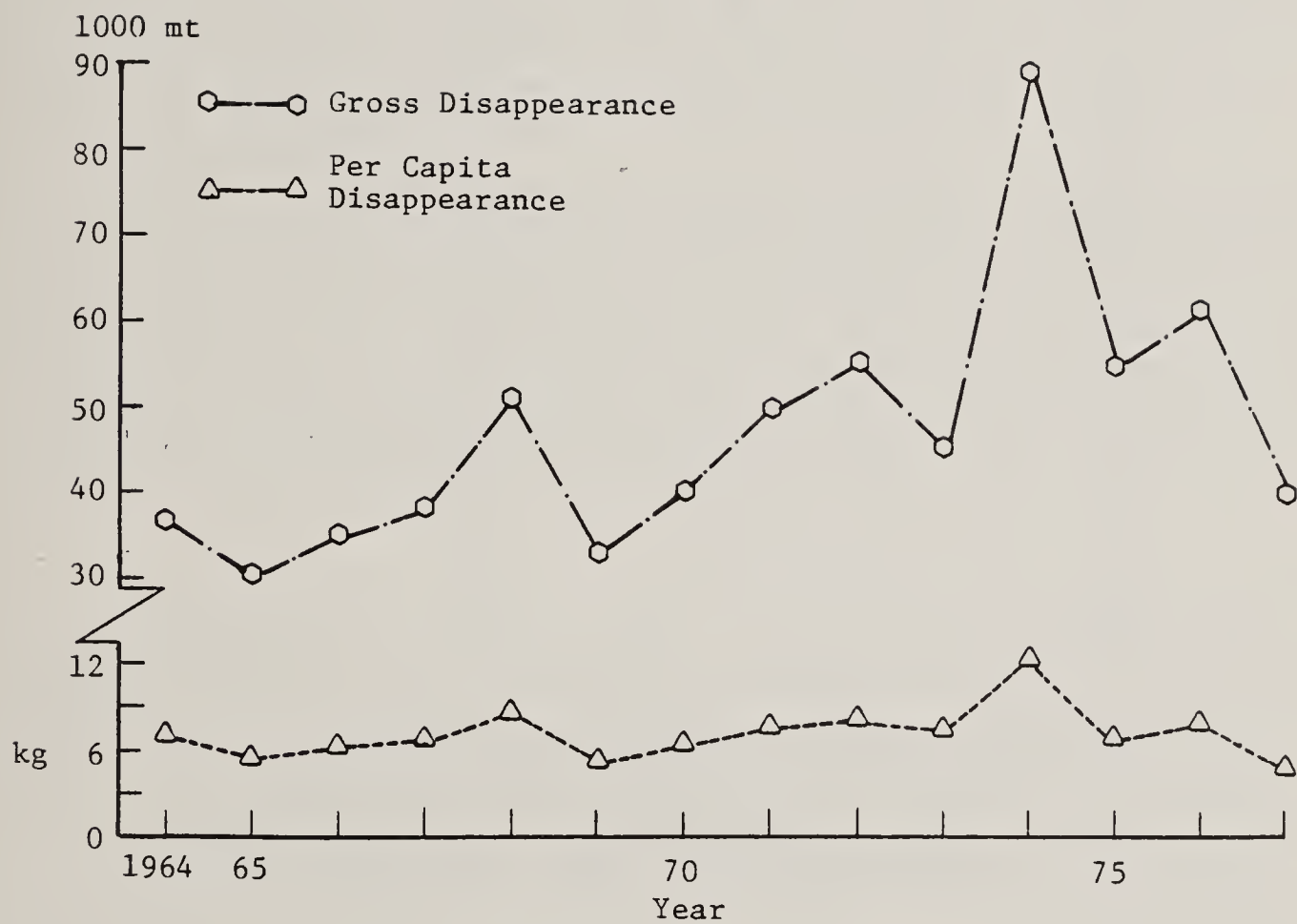


Figure 1.7 Gross and per capita disappearance of rice, Syria, 1964-77.

Source: Appendix Table A40.

Table 1.20

Retail and Wholesale Rice Prices in Syria in Current
Syrian Pounds, 1963 - 1977

Year	Retail		Wholesale	
	Market	Voucher ^a	Market	Voucher
	- - - - -Piaster/KG - - - - -			
1977	145	80	141	76
1976	145	80	141	76
1975	145	80	141	76
1974	145	80	141	76
1973	145	80	141	76
1972	80	-	76	-
1971	80	-	76	-
1970	90	-	86	-
1969	90	-	86	-
1968	90	-	86	-
1967	89	-	85	-
1966	75	-	71	-
1965	70	-	66	-
1964	70	-	66	-
1963	65	-	61	-

^aConsumers limited to 750 grams/person/month.

Source: (Central Bureau of Statistics), Statistical Abstract of Syria, various issues 1965-1977.

lentils, chick peas, dry broad beans, dry haricot beans, dry kidney beans, rambling vetch, flowering sern and bitter vetch. Most of these are for human consumption although the vetches and sern are fed to livestock.

Syria is self-sufficient in the legumes group. Although there is a positive trend in production, year-to-year changes in output are quite substantial (Figure 1.8). These yearly fluctuations are due to weather patterns--almost all production takes place on rain-fed land--and significant increases in government-supported prices for lentils beginning in 1975. The price increases are most apparent for lentils; over 50% per annum between 1974 and 1976 resulting in greater planting and production (Appendix Table A1). The trend in exports, of which lentils is the main commodity, has been negative since 1964 (except for 1977 when stocks had to be traded following the good 1976 crop year). This negative trend may be due to an increasing population requiring a greater share of domestic production, or simply disinterest in exploiting the world market. Per capita disappearance follows the production pattern closely--which would indicate few stocks on hand to smooth out annual fluctuations. There is a slight positive trend in per capita consumption.

Lentil prices, a good indicator for all legumes, exhibited very little increase at the wholesale and retail levels until 1973. Price increased 100 percent between 1972-73 due to poor production in both legumes and the closet substitute, wheat. Prices since 1973 have increased, though not so dramatically as in 1972-73 (Table 15-19). Lentils, purchased by the Cereals Bureau like wheat and barley, may also incur subsidies because the differences between farm, wholesale, and retail prices do not appear large enough to cover marketing costs. No estimate of a subsidy is provided here due to lack of marketing cost information for lentils.

1.2.3 Vegetables

Vegetables are second to cereals in the quantity consumed in the Syrian diet in terms of weight. Most vegetables are produced in the summer although there are plans to establish and expand greenhouse facilities for increasing winter vegetable production. In addition most vegetables are produced on irrigated land thus utilizing the better and more valuable agricultural lands. Some winter vegetables are imported, mostly from Jordan.

A review of production trends (Figure 1.9) indicates the vitality of this part of agriculture. Production has more than quadrupled from a low point in 1966 to 2.5 million M.T. in 1977. Per capita disappearance likewise has tripled from a low point in 1966 to 311 kg in 1977. Trade trends indicate that imports have increased in response to consumer demand and similarly exports have decreased. However, Syria is practically self-sufficient in its vegetable needs as imports account for only 3% of production.

Vegetable prices at the consumer level have risen substantially (Table 1.15). In Aleppo, which is closer to the main production areas, prices have increased by 200% over their 1962 levels, a compound rate of 7.9% per annum. In Damascus, prices have increased significantly relative to Aleppo since 1974; reasons for this may include greater consumer demand because of higher incomes and population growth in Damascus. Vegetable prices are not fixed by the central government; rather, maximum wholesale and retail prices reflecting supply and demand are established bi-weekly at the mohafazat

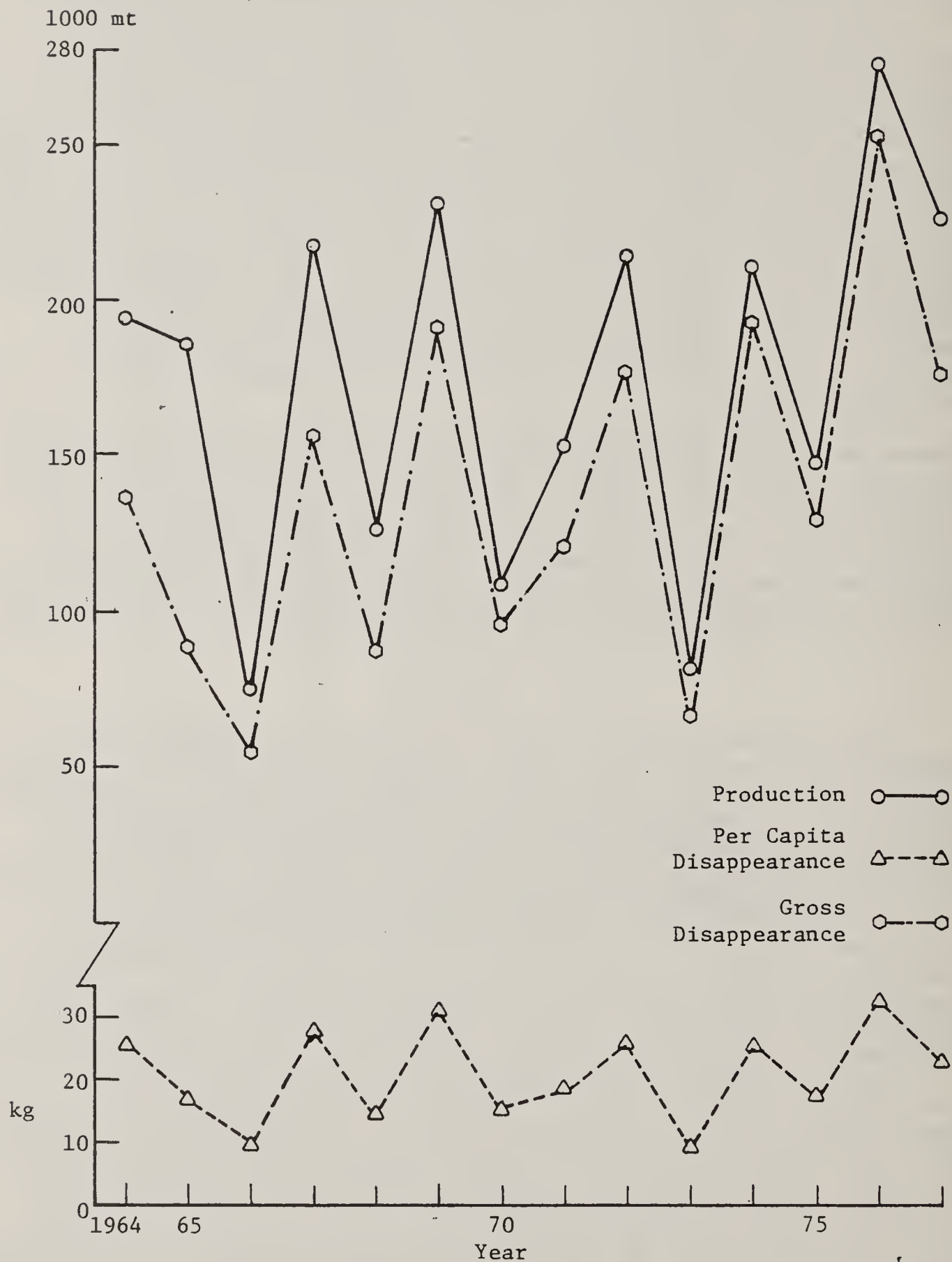


Figure 1.8 Production and gross and per capita disappearance of legumes, Syria, 1964-77.

Source: Appendix Table A49.

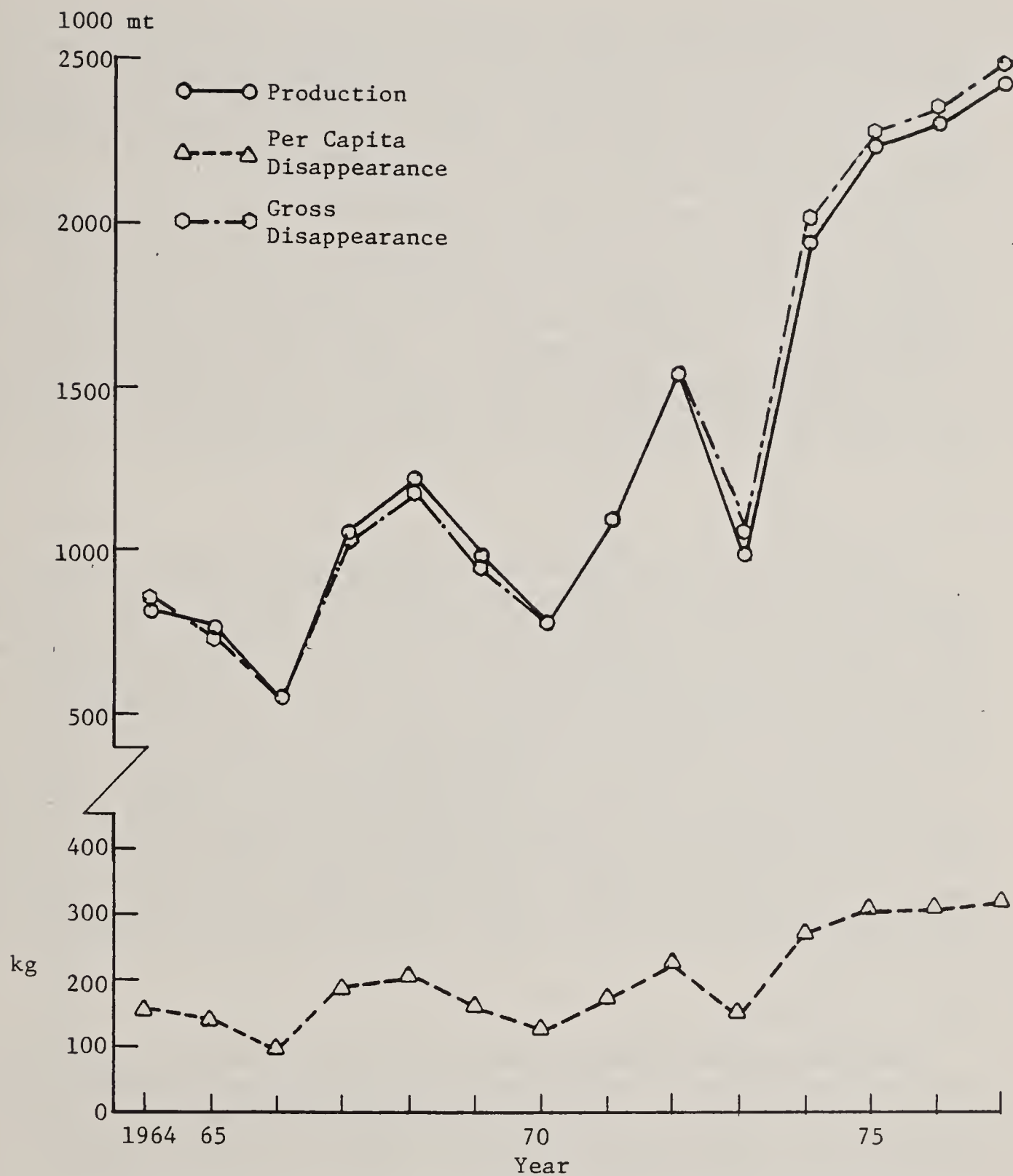


Figure 1.9 Production and gross and per capita disappearance of vegetables, Syria, 1964-77.

Source: Appendix Table A69.

level by a special committee.¹ Despite the large price increases, one can infer that this less rigid pricing policy may be adequate because of the increases in production and consumption.

1.2.3.1 Potatoes

Potatoes are substituted to some extent for cereals, legumes, and rice in the Syrian diet. Like vegetables in general, the trend in potatoe production is positive (Figure 1.10). The production level in 1977 was over three times the level in 1964. Per capita disappearance in 1977 increased to twice the 1964-66 average level. With increases in domestic production, Syria is becoming more self-sufficient in its potatoe needs and the trend in imports has been downward.

Potatoe prices have increased by approximately 200% at the wholesale and retail levels during the 1969 to 1966 period. Local potatoes generally are slightly less in price than imported ones (Appendix Tables A4-A7). Potatoe prices in the mohafazats outside the Damascus and Aleppo areas are generally lower. Maximum potatoe prices are established bi-weekly at the mohafazat level as with other vegetables. Again, this pricing method is more flexible and more compatible with economic forces because producers are responsding to higher prices and consumers are increasing their consumption even though two close substitutes, wheat and rice, have had lower prices per kilo.

1.2.3.2 Tomatoes

Tomatoes rank as the number one vegetable crop in terms of weight produced and are also the most valuable vegetable crop. Production trends indicate significant increases during 1964-77, up to three times the 1964-66 level (Figure 1.11). Imports have grown to meet the increased demand, and exports have been practically zero since 1973. Per capita disappearance has more than doubled during the 1964 to 1977 period. Although imports have increased, they are a decreasing proportion of gross disappearance, indicating Syria is becoming more self-sufficient in tomatoes.

Tomatoe prices, like other vegetable crops, have increased substantially (Appendix Table A8). Since 1963 price increased two and a half to four times. Prices have risen faster than both the general Consumer Price Index and C.P.I. for foodstuffs in Aleppo and Damascus (Table 1.1). Since the middleman charges a five to seven percent commission and the retail-wholesale price spread seems reasonable, one can infer that the producers are benefiting from higher prices.

1.2.3.3 Watermelons

Watermelons are second to tomatoes in terms of weight produced and the second most valuable vegetable crop. Production trends indicate no positive trend until the 1973-77 period when hectares planted increased (Figure 1.12). Since most of this crop is grown on rain-fed land, the

¹The committee is made up of one member from the Ministry of Agriculture and Agrarian Reform, Ministry of Supply and Internal Trade, Peasants, Union, and executive department in the mohafazat.

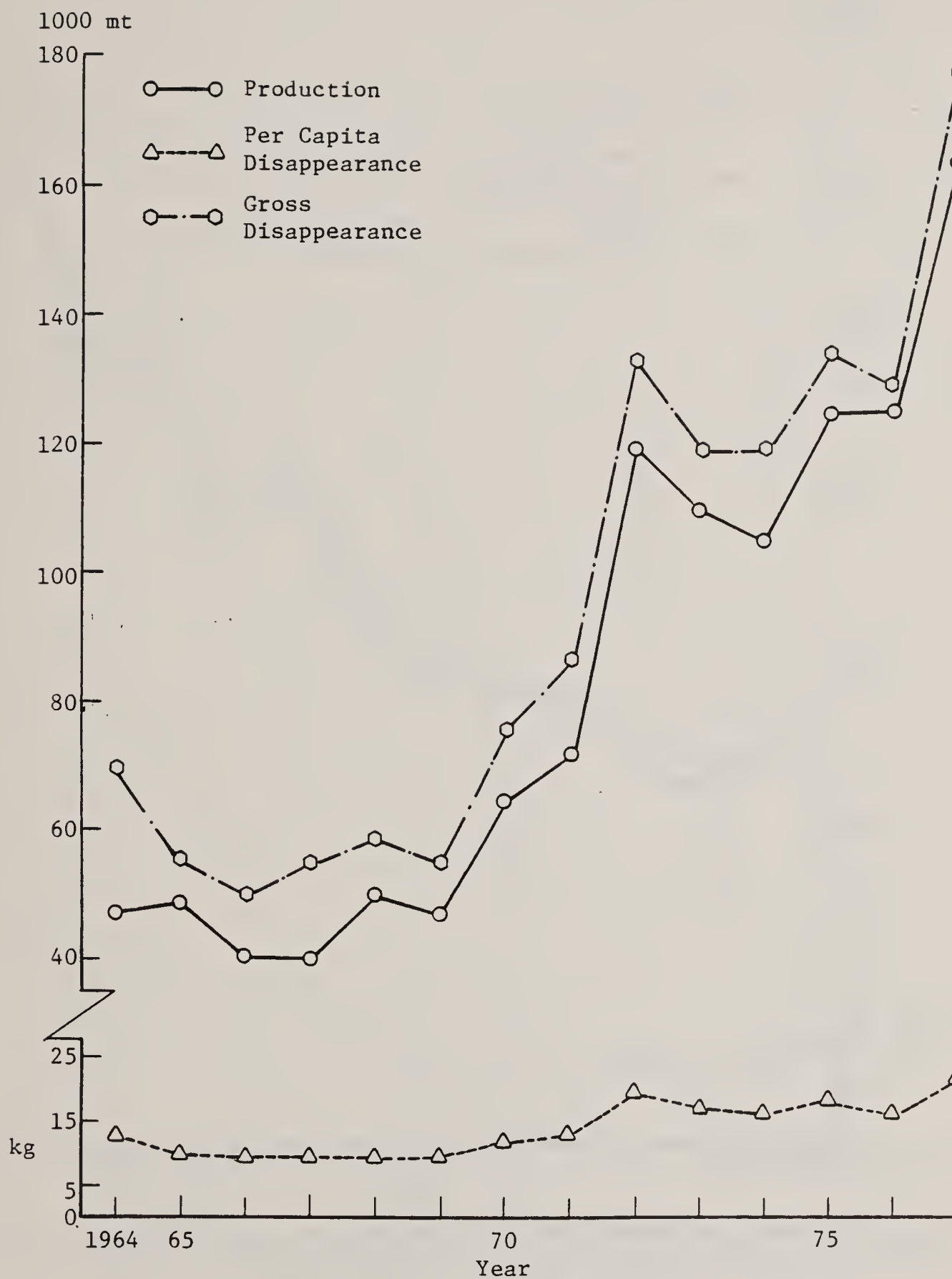


Figure 1.10 Production and gross and per capita disappearance of potatoes, Syria, 1964-77.

Source: Appendix Table A45.

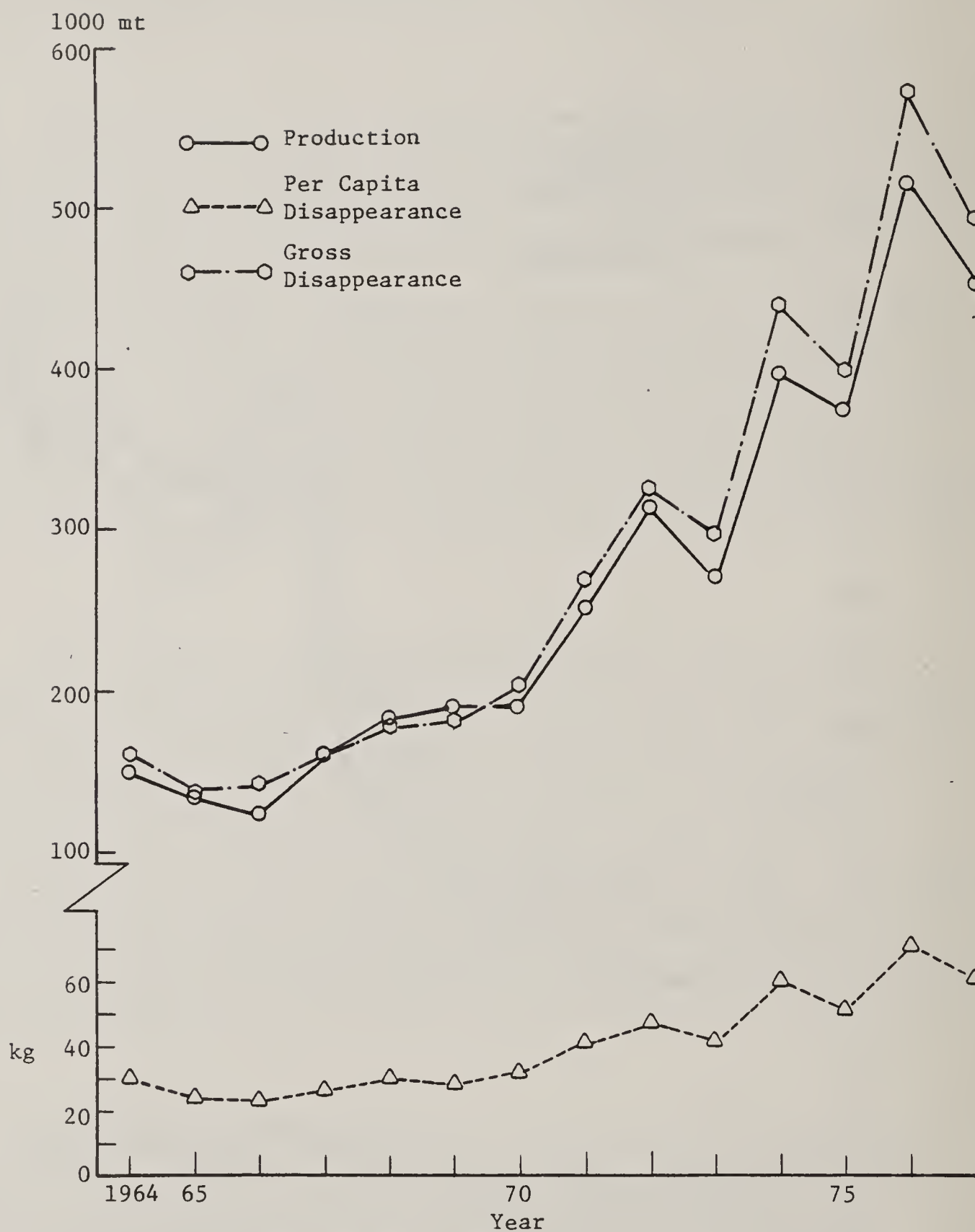


Figure 1.11 Production and gross and per capita disappearance of tomatoes, Syria, 1964-77.

Source: Appendix Table A70.

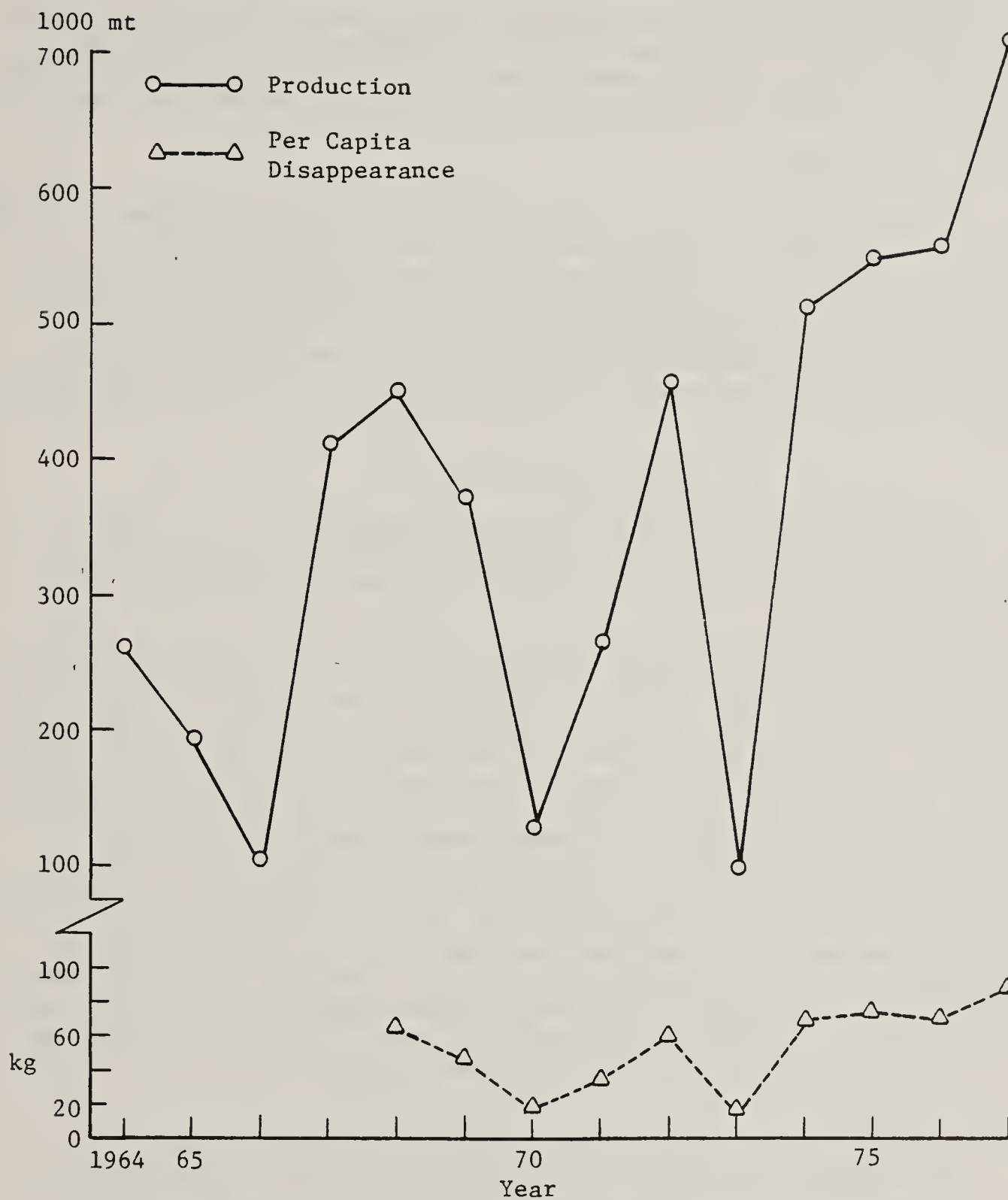


Figure 1.12 Production and per capita disappearance of watermelon, Syria, 1964-77.

Source: Appendix Table A71.

fluctuations in production represent cyclical weather patterns. Syria has been self-sufficient in its watermelon needs at least since 1968. However, to meet the increasing demand, exports have had a decided negative trend. Per capita disappearance has followed the production cycle with a positive trend since 1973.

Watermelon prices (Appendix Tables A9-A10) have doubled at the retail level since 1968-69. Retail and wholesale prices in the mohafazats have generally been lower than in Damascus and Aleppo; instances of higher prices may be due to market imperfections or abnormal supply-demand relationships.

1.2.3.4 Other Crops

Other vegetable crops of lesser importance include dry onions, cucumbers, and squash. Production of these crops has been increasing similar to vegetables in general. Imports come from Jordan during the winter season. Prices for these crops have been following the trend for other vegetables, with prices doubling or tripling since 1969-70 (Appendix Table A11-A15). Lower prices in the mohafazats outside of Damascus and Aleppo reinforce previous observations and would be consistent with market forces and equity goals.

1.2.4 Fruits and Nuts

Fruits and nuts rank third in weight contribution to the Syrian diet. About one-third of all fruit and nut production is now irrigated. Important commodities to be discussed below include olives, grapes, apricots, apples, and peanuts.

Production trends are illustrated in Figure 1.13. Until the 1973-77 period there was no discernible trend in production. As a result, per capita disappearance declined from a high of 100 kg. in 1964 to around 80 kg during 1970-72 only through increasing imports of some items as indicated in Appendix Table A62. Exports of other items have declined markedly to fulfill domestic demands. Until new acreage is brought into production through the Euphrates project, Syria must import approximately one-fourth of its fruits and nuts.

As a result of increasing consumer demand, and inadequate domestic production increases in prices for fruits and nuts have led all other commodities at the retail level (Table 1.15). In contrast, at the wholesale level, prices increased at the lowest rate among all commodity groups (Table 1.2). This situation may raise questions about the efficiency of the marketing system between the wholesale and retail levels. Further, slowly increasing farm prices may inhibit new fruit and nut development, as an adequate return on investment for tree crops takes several years. Inflationary pressures on retail fruit and nut prices have been particularly high since 1973.

1.2.4.1 Olives

Olives rank as the number two fruit crop in weight, second only to grapes. Most of the crop is used for oil production although a significant amount is sold for fresh consumption. A review of consumption and production trends reveals very wide annual fluctuations, a common phenomenon with olive production, around an upward trend, Figures 1.14 and 1.15. Most olive trees are rain-fed. There is little or no external trade in fresh olives, suggesting

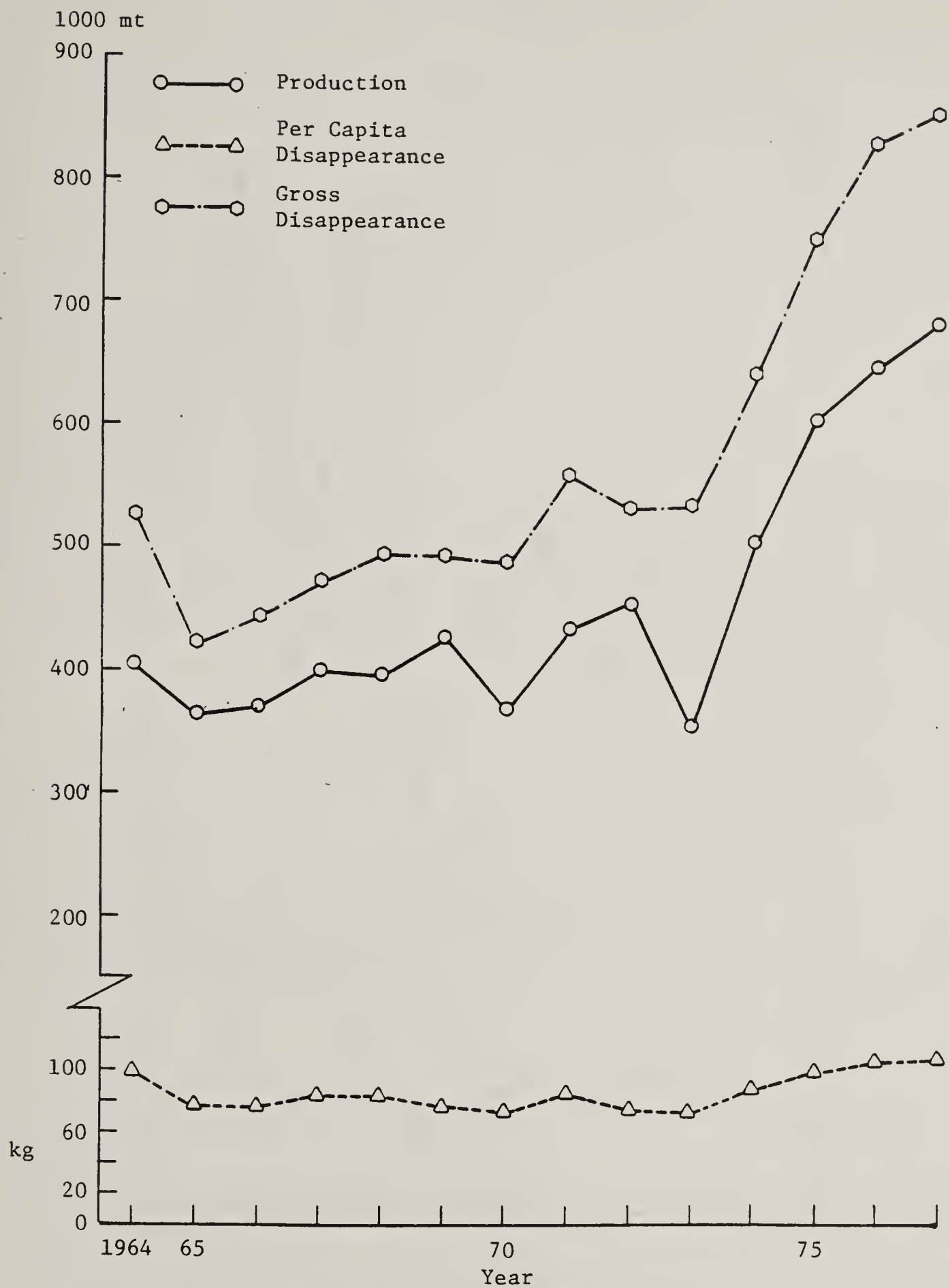


Figure 1.13 Production and gross and per capita disappearance of fruits and nuts, Syria, 1964-77.

Source: Appendix Table A62.

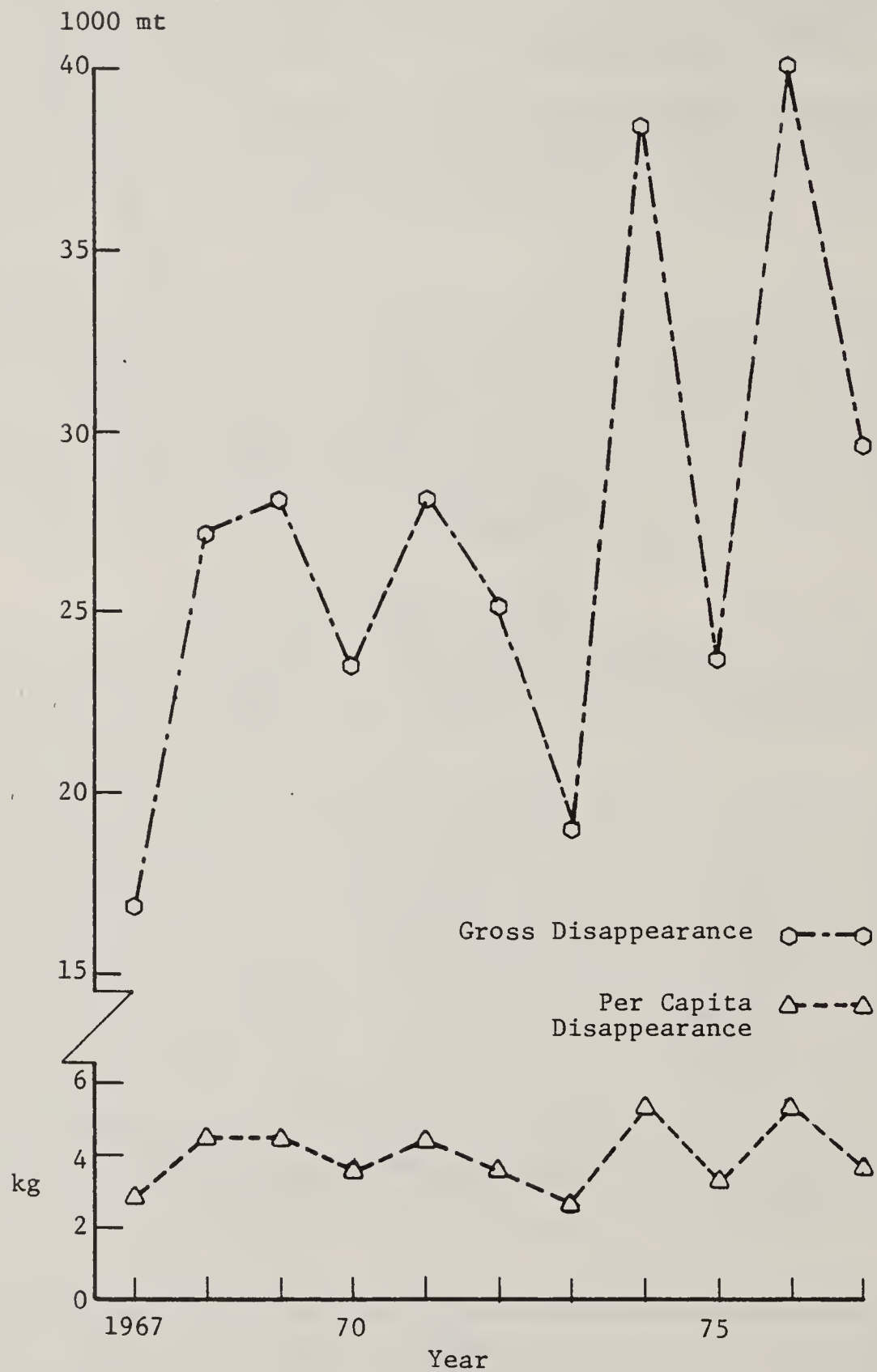


Figure 1:14 Gross and per capita disappearance of fresh olives, Syria, 1967-77.

Source: Appendix Table A64.

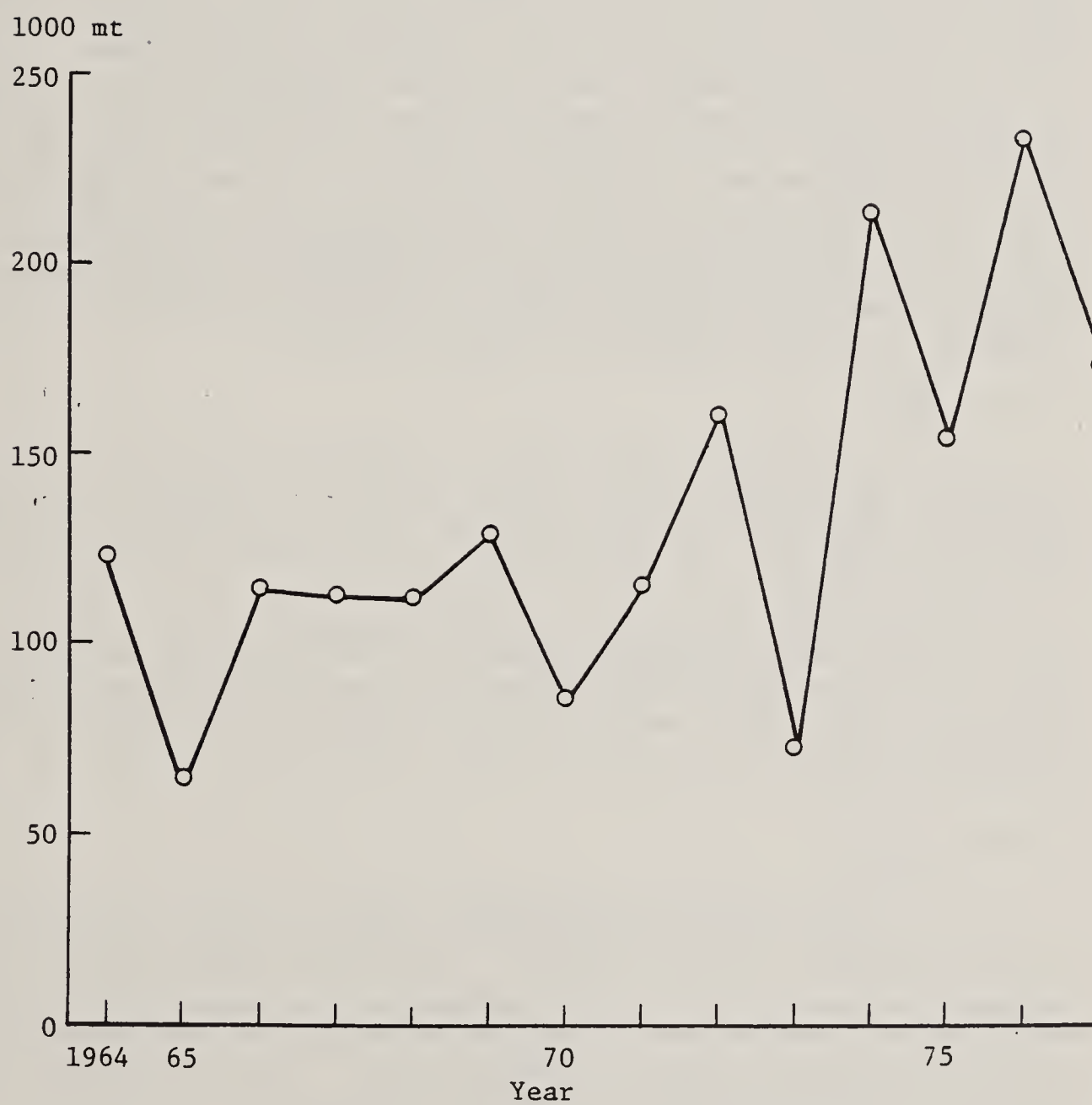


Figure 1.15 Total olive production, Syria, 1964-77.

Source: Appendix Table A64.

that Syria is self-sufficient. Per capita consumption has followed production with an upward trend since 1973. Fresh olive prices, like fruit and nut prices in general, have doubled during 1970-77.

1.2.4.2 Grapes

The fruit crop with the largest volume of annual production is grapes. Utilization includes fresh consumption, raisins, and wines. Most grapes are consumed fresh. Until 1972 there was no discernible trend in production (Figure 1.16). Since 1972, when wholesale and retail prices began increasing dramatically, hectares under production increased 40% during 1972 to 1976, mainly in irrigated areas. Consequently, there was a substantial upward trend in production (66% increase) during 1973 to 1977. Exports of fresh grapes have fallen to zero in order to satisfy domestic demand. With no reported imports, Syria appears self-sufficient in fresh grapes.

Prices of fresh grapes have increased substantially since 1970 at the wholesale and retail levels (Appendix Tables A16-A17). As with vegetable prices, grape prices vary bi-weekly as supply and demand conditions warrant. Since the margin between wholesale and retail prices has remained small since 1970, one can infer that the benefits of higher prices have gone to producers. Thus, this pricing program seems satisfactory since producers have responded to higher prices by producing more and consumers, with higher incomes, have chosen to consume more grapes. As with vegetables, grape prices in the mohafazats outside of Damascus and Aleppo are lower.

1.2.4.3 Apples

Apple production tripled during the 1965-1976 period. Per capita consumption in 1976 was almost twice the 1966 level (Figure 1.17). Despite increased production Syria is not self-sufficient in apples and strong consumer demand has resulted in sizable imports. During 1976-77 imports accounted for 24% of total supplies.

Wholesale and retail apple prices approximately doubled during 1970 to 1975 (Appendix Tables A18-A19). However, as with vegetable and other fruit prices, one may infer that this situation is acceptable because of producer and consumer responses. Again, prices at the other mohafazats are lower presumably because incomes are lower and direct home consumption is higher in production areas.

1.2.4.4 Apricots

The apricot crop is fourth highest in tons of fresh fruit harvested in Syria. Besides its use in fresh consumption, apricot utilization also includes marmalade and dried products. Production trends indicate large increases in output (Figure 1.18). Almost all the increase in area farmed since 1967 has been irrigated, thus accounting for the 150 percent increase in 1975-77 production above the 1964-67 level. Trade in apricots is small, making Syria generally self-sufficient in this crop. Per capita disappearance has risen by over 300% during the 1965 to 1975 period.

Apricot prices tripled during 1971-77 in Damascus and Aleppo (Appendix Table A20). Since the difference between retail and wholesale prices has remained relatively the same, most price increases have accrued to producers which may explain the increase in production. Lower prices in other mohafazats are consistent with earlier observations.

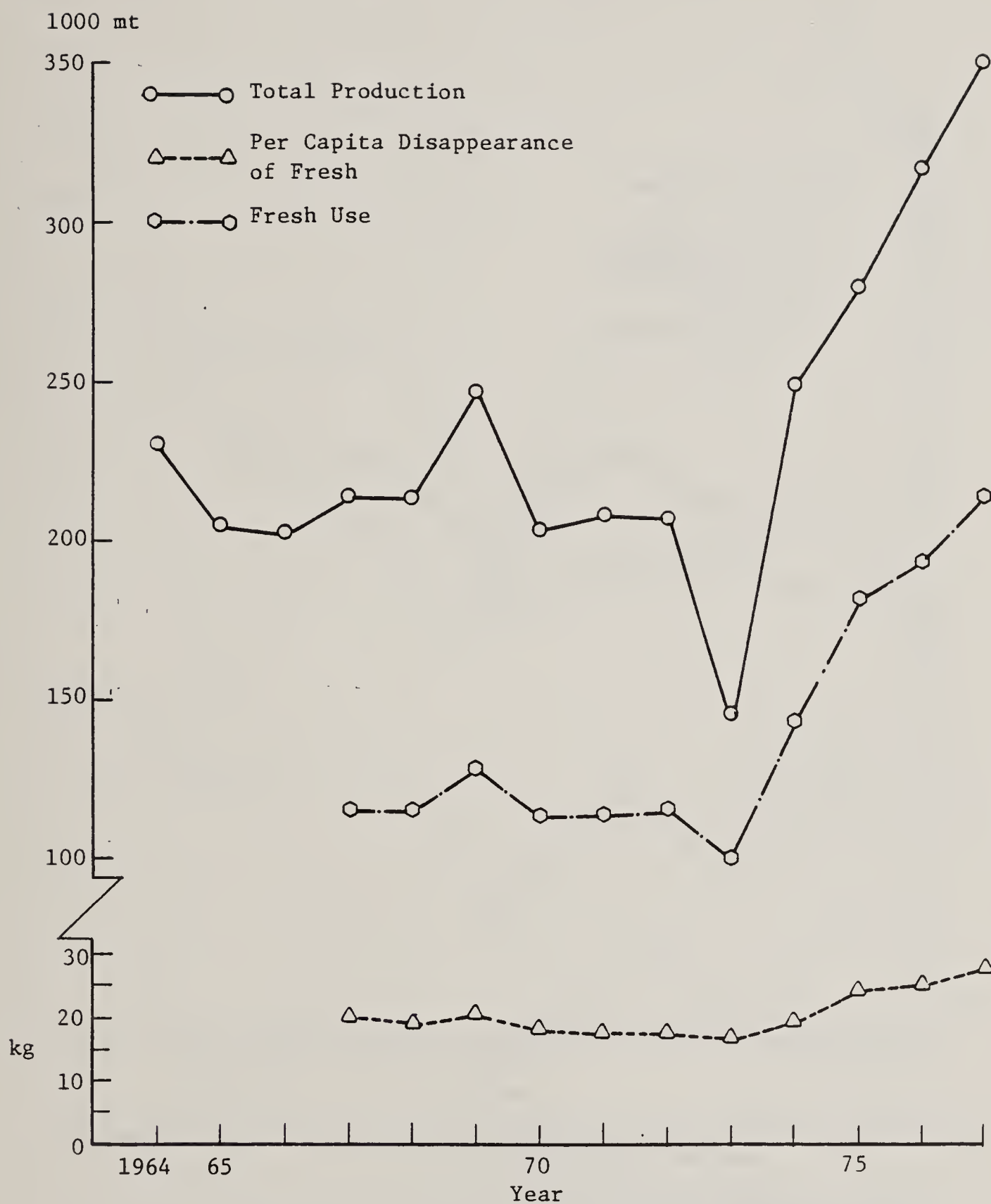


Figure 1.16 Total production and per capita disappearance of fresh grapes, Syria, 1964-77.

Source: Appendix Table A66.

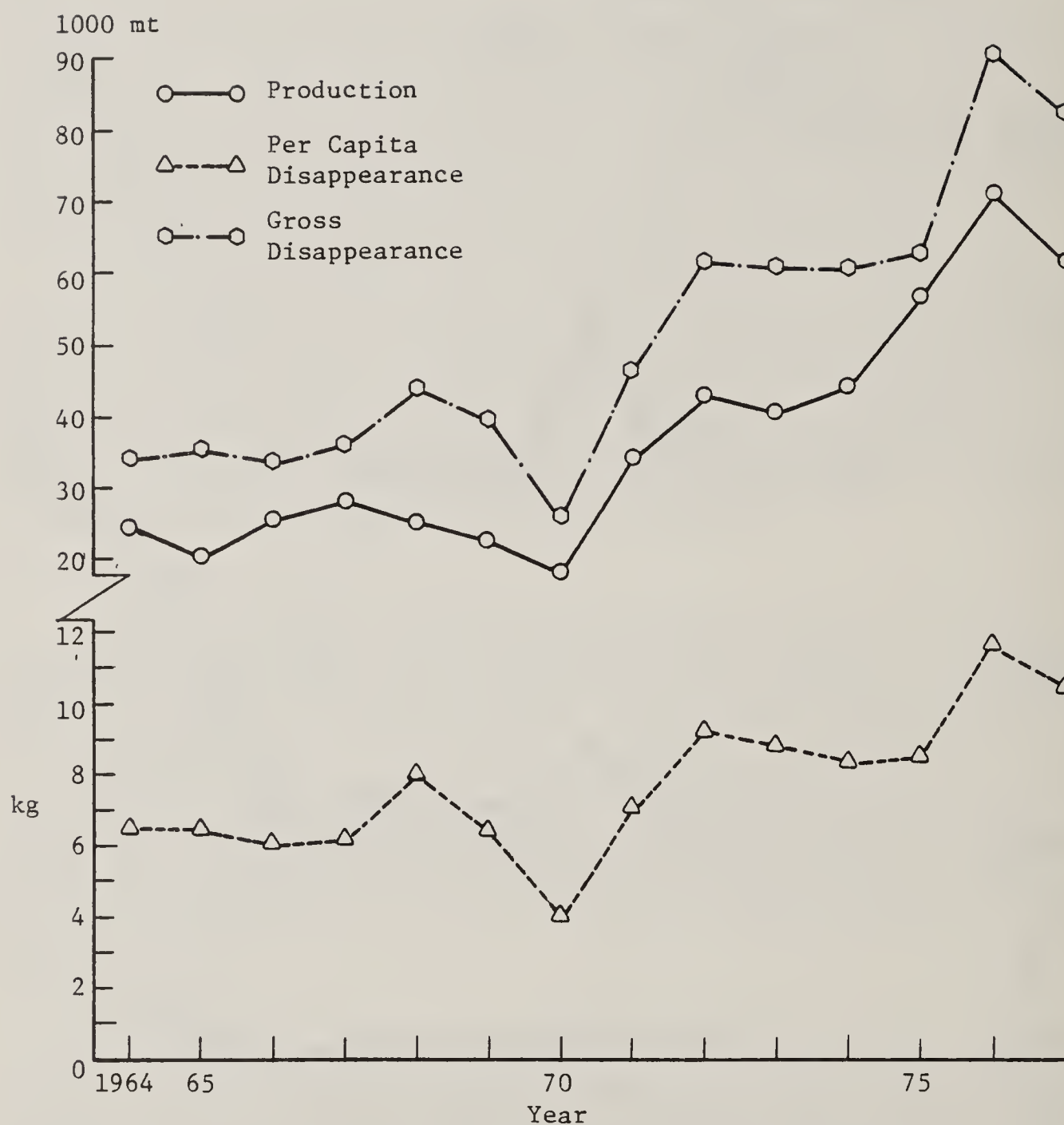


Figure 1.17 Production and gross and per capita disappearance of apples, Syria, 1964-77.

Source: Appendix Table A68.

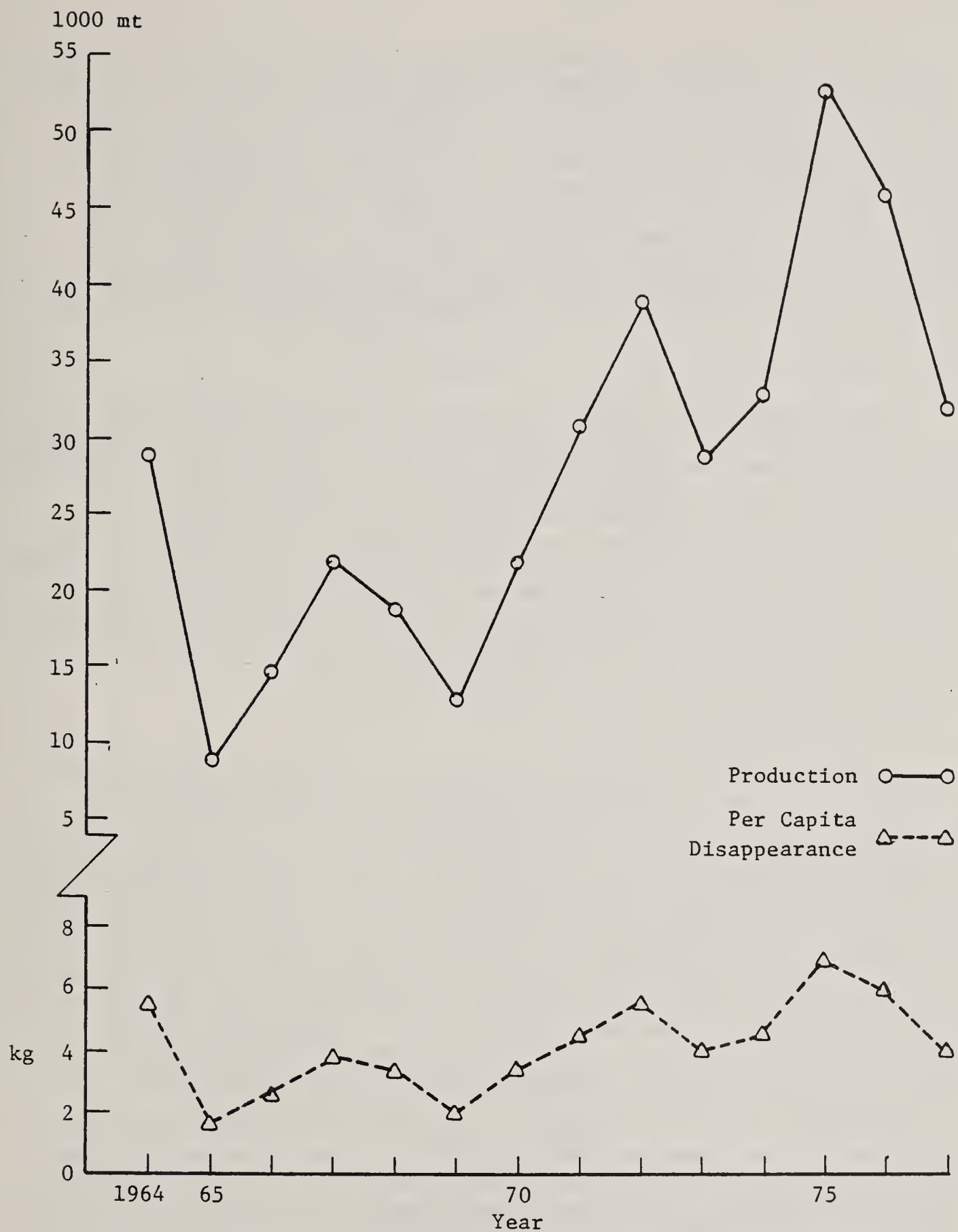


Figure 1.18 Production and per capita disappearance of apricots, Syria, 1964-77.

Source: Appendix Table A67.

1.2.4.5 Peanuts

Usually considered an industrial crop, peanuts are primarily consumed as nuts in Syria. Except for shelling peanuts for the export market, there is very little processing. Production increased almost two and one-half times during 1964-1976 (Figure 1.19). The increases in production have out-paced population growth, thus per capita disappearance has more than doubled since 1964. Trade is important for this crop as exports range from 25-50% of production. Thus, peanuts fulfill the self-sufficiency goal and aid in the balance of trade. Peanut prices at the farm level have been set by the central government since 1973. Farm prices since 1973 have more than doubled (Table 1.14). Most peanuts are marketed by the private sector which apparently out bids the government for the crop.

1.2.4.6 Other Crops

Other fruit and nut crops of importance include citrus, bananas, figs, and pistachio. Syria is particularly deficient in citrus production, especially oranges (see Statistical Abstract). In order to satisfy domestic demand, 70-80% of the commodity is imported.¹ Orange retail price in Damascus rose 77 percent from 1970 to 1975 (Appendix Table A21).

All bananas are imported from either Central or South America. The prices of these items have increased less rapidly than those of other commodities (Appendix Tables A21-A24). Their prices are generally higher in the mohafazats outside of Damascus and Aleppo, probably reflecting transportation and other marketing costs. Figs and pistachio are two valuable crops with some exports so that the self-sufficiency goal is met.

1.2.5 Livestock, Poultry, and Products

The total value of animal production is approximately one-third that of plant production (Statistical Abstract). Livestock and poultry production follow cereals and industrial crops in value of production (Statistical Abstract, 1978). In general, the level of total animal production has been increasing, particularly since 1972. On a per capita basis, however, performance in 1976 had almost reached the 1964-66 level after experiencing a sharp decline in the interim (Table 1.6, Figure 1.3). It could be said that Syria is self-sufficient regarding its animal product needs but policies restricting importation of feed grains, reliance on domestic feed grains, and constant pasture conditions result in slow growth. Trade in live animals, meat and meat products has been relatively low. Substantial imports occurred in the first half of 1979 but data are not available. However, dairy and egg imports are an exception as their value ranked number three in 1977 (Table 1.8).

Wholesale prices for animals and animal products have increased the fastest of all the commodity groups (Table 1.2). Retail price increases equalled those of fruits and vegetables (Table 1.15). Meat products have led price increases at the wholesale and retail levels while milk and dairy products have been relatively more moderate at the retail level. The price increases--over 300 percent and 200 percent since 1962 at the retail and

¹There is a state plan to increase fruit production, citrus included, in the northeast area through use of economic incentives for orchard development and improvement.

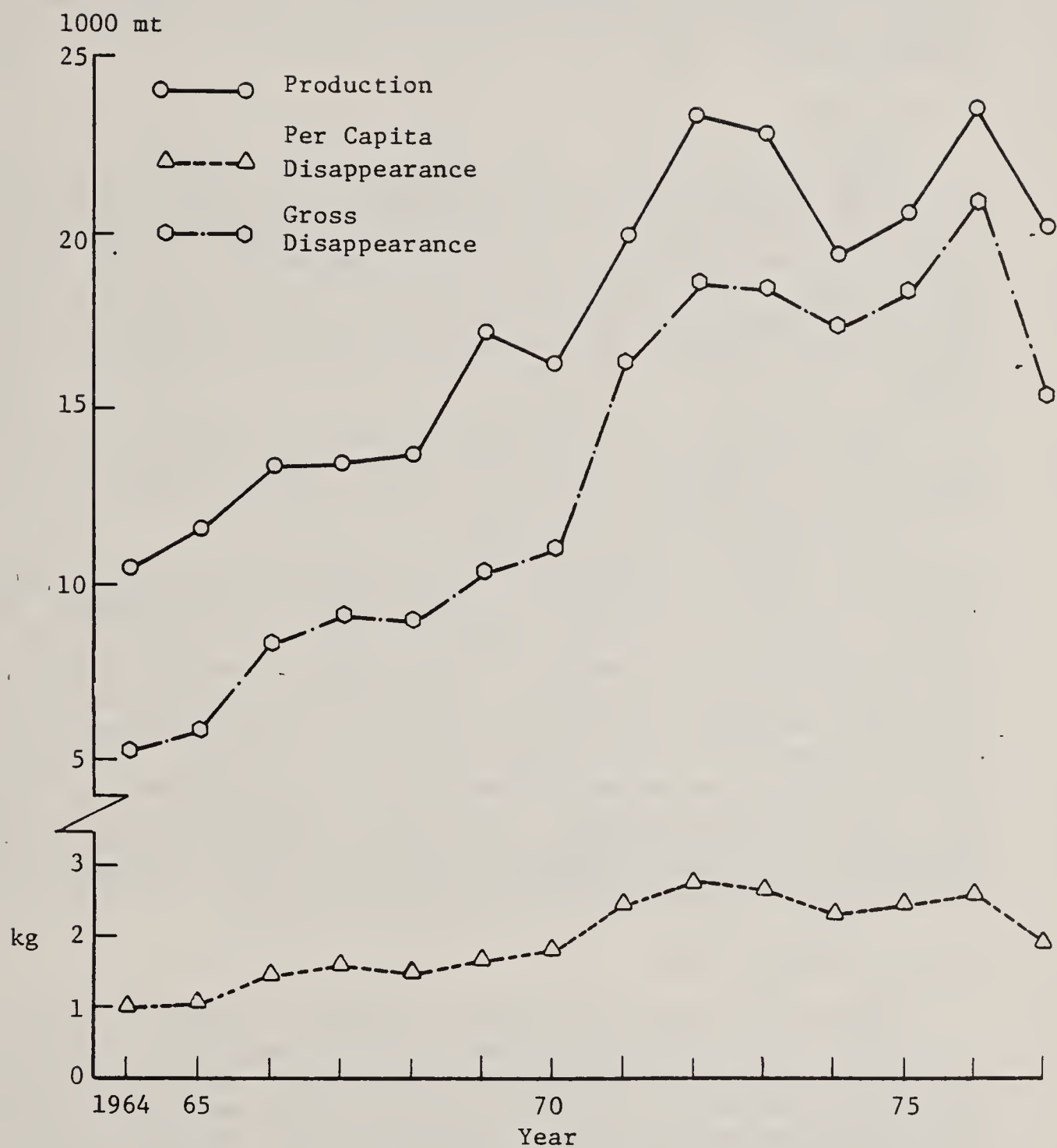


Figure 1.19 Production and gross and per capita disappearance of peanuts (in shell), Syria, 1964-77.

Source: Appendix Table A44.

wholesale levels, respectively--have been caused by higher incomes and population pressures in Syria bearing down on a slowly-growing livestock sector. In a rough comparison, these products experienced price increases 50 percent above those in the United States over the same period. Retail meat prices in Syria more than doubled from 1973 to 1977 while U.S. retail prices increased less than 5 percent. To provide more detail, major commodities within the livestock, poultry, and products subsection are discussed below.

1.2.5.1 Meat

Total meat production, which includes sheep and lamb, goats, cattle, camels, and chickens, has been very erratic (Figure 1.20). Since 1974 there has been an upward trend in production, but whether this can continue, in light of past performance, remains to be seen. Per capita disappearance also exhibits an upward trend since 1974, but until that time no trend was apparent. As mentioned, trade in meat, dairy, and egg products (Appendix Tables A50-A57) has been small compared to domestic production (3-4 percent at the most), and there are export restrictions on meat products and live animals.

Beef production in 1975-77 had increased 74 percent over its 1966-68 level; poultry production had nearly tripled during the 1967 to 1977 period; but mutton and lamb meat--65% of total meat production--show no trend in production (Appendix Tables A52-A54).

Since 1967 the General Consumption Institute has been the only official wholesaler of meat in Damascus and prices have been regulated. Meat prices outside of Damascus are relatively uncontrolled. Despite greater increases in meat, fish, and egg prices in Aleppo compared with Damascus (Table 1.15), the retail market price levels for sheep meat, cow meat, calf meat, and live poultry were lower in Aleppo during 1963-77 (Appendix Tables A25-A28). The General Consumption Institute, which has incurred large annual losses on its meat operation with regulated prices in Damascus, has attempted to minimize losses by operating at less than full capacity and importing meat which tended to dampen producer prices. These losses are "subsidized" by other more profitable activities of the GCI. Estimates of these losses, according to the General Consumption Institute, were 22 million L.S. in 1977 and a preliminary estimate of 20 million L.S. in 1978.

1.2.5.2 Dairy and Eggs

Production trends of both dairy and eggs have been increasing (Figures 1.21-1.22). Dairy production, after a definite negative trend during 1964-73, has increased by 70 percent from 1973 to 1977. Egg production has been increasing steadily since 1964 and since that time has more than doubled output. The increases in poultry, eggs, and dairy production since 1973 may be partly due to increases in maize and barley production since 1973 (cf. Figures 1.5-1.6) but were largely made possible by the recent development of facilities to import feed grains, process, and distribute mixed feeds. Per capita disappearance of dairy products has closely paralleled total production: the downward trend during 1964-73 is being reversed. Per capita egg disappearance has had a positive trend during the entire 1964-77 period.

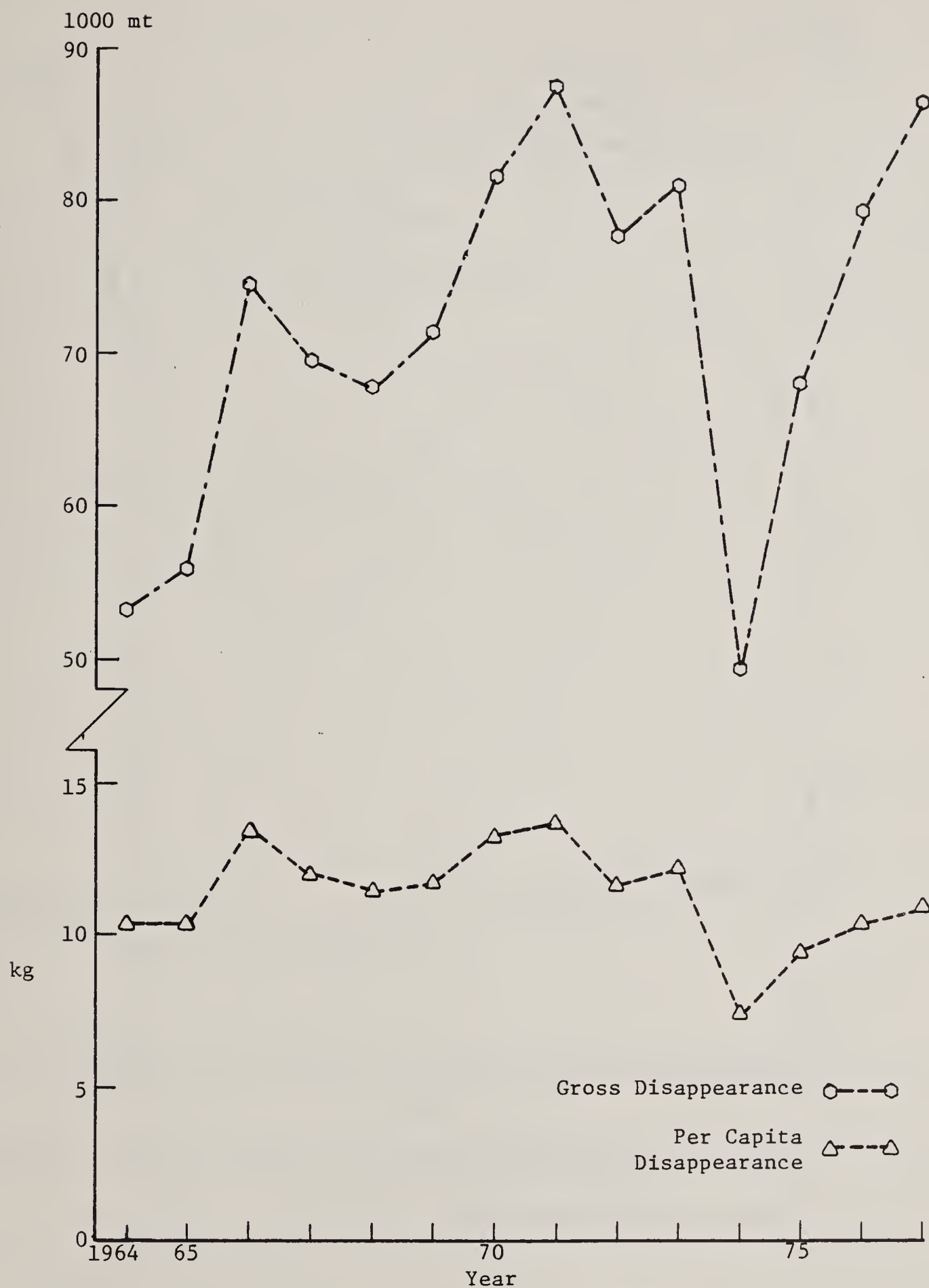


Figure 1.20 Total and per capita meat disappearance, Syria, 1964-77.
Source: Appendix Table A57.

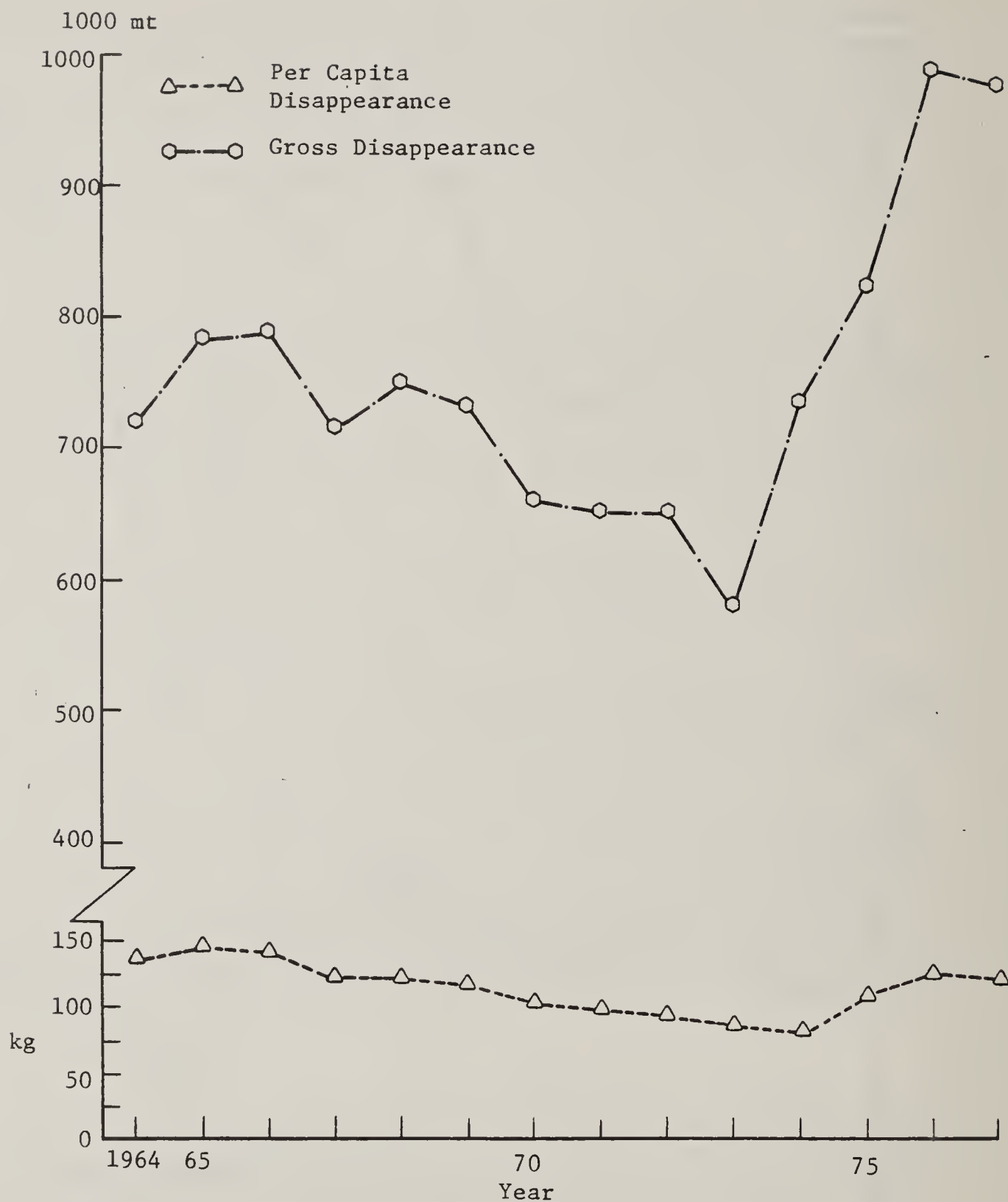


Figure 1.21. Gross and per capita disappearance of dairy products, Syria, 1964-77.

Source: Appendix Table A50.

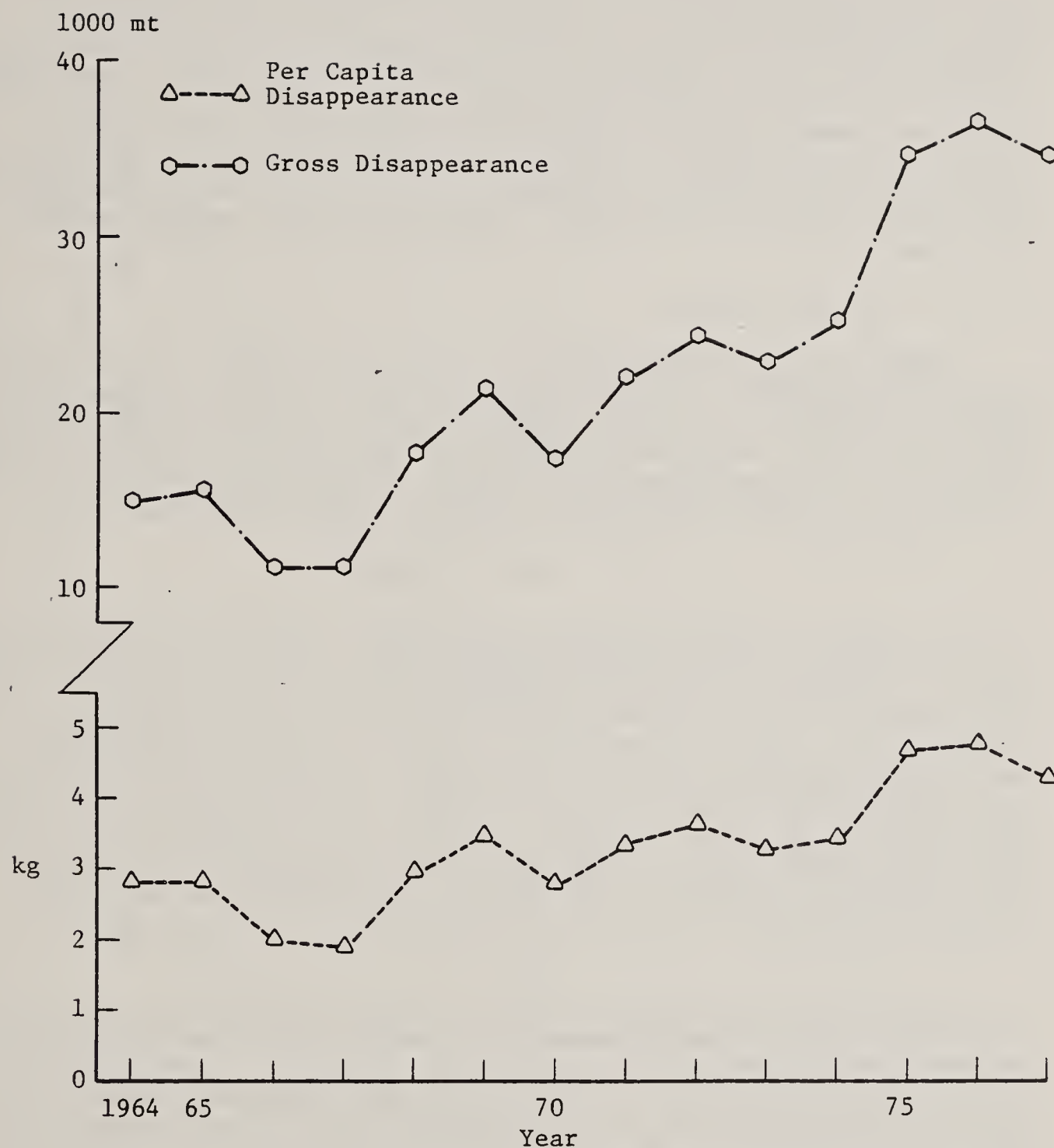


Figure 1.22 Gross and per capita disappearance of eggs, Syria, 1964-77.

Source: Appendix Table A51.

The value of trade in dairy products and eggs has been substantial, but Syria appears generally self-sufficient for both commodities (Appendix Tables A50-A51).

Dairy and egg prices are relatively flexible. Inflationary pressures have caused prices to more than double at the wholesale and retail levels during 1970-77. Aleppo dairy prices were consistently higher than those in Damascus during this period. Dairy and egg prices in mohafazats outside these two cities were generally lower, reconfirming earlier observations (Appendix Tables A29-A35). The efficiency of price policy here seems adequate, especially for eggs, where one can draw parallels with vegetables and fruits. One should recognize, however, the close relationship between livestock, poultry, dairy, and egg production with policies affecting feed grain imports and production and pasture improvement.

1.2.5.3 Wool and Leather

Other products from livestock are wool and leather. There has been no discernible trend in either wool or leather production (Appendix Tables A58-A60). In fact, to satisfy growing consumer demand for both products, imports have been increasing while exports have remained relatively constant. As with dairy and eggs, one should recognize the relationship between these products and policies which affect livestock numbers and production.

1.2.6 Industrial Crops

As a group, industrial crops have usually ranked as the second most valuable behind cereals (Statistical Abstract, 1978). There are an important group of commodities providing employment and helping the balance of trade. The industrial crops to be discussed here include cotton (for lint and vegetable oil), olive oil, sugar, and tobacco. Cotton and tobacco are the main cash crops. Among these crops, tobacco production is increasing the most rapidly; sugar imports require the most foreign exchange; and cotton earns the most in foreign exchange. Syria is self-sufficient in all of these crops except sugar. Although it is the government's intention to encourage sugar production, very little or no progress has been made.

1.2.6.1 Cotton Lint

Cotton holds an important place in Syrian agriculture. Farmed for centuries, it is renowned throughout the world for its quality. Through the use of modern methods, fertilizer, and pesticides, cotton yields increased over 40% during 1967 to 1977. This has enabled the harvest of the same amount of cotton from less land, as government policy has brought sugar beets into production at the expense of cotton and, to some extent, Mexican wheat (Appendix Table A2). Thus, cotton production has been relatively stable since 1968 even with declining area (Figure 1.23). Exports which account for three-fourths of the crop have generally followed the production pattern and have no discernible trend. During 1973-75 when the world cotton market enjoyed prices two to three times above average, Syrian exports actually declined.

Until 1972, annual seed cotton prices were very stable. Seed cotton prices at farm level have increased substantially since 1972; 14 percent per annum through 1978 (Table 1.14). Seed cotton prices increased 117 percent since 1972 but the general Consumer and Wholesale Price Indices

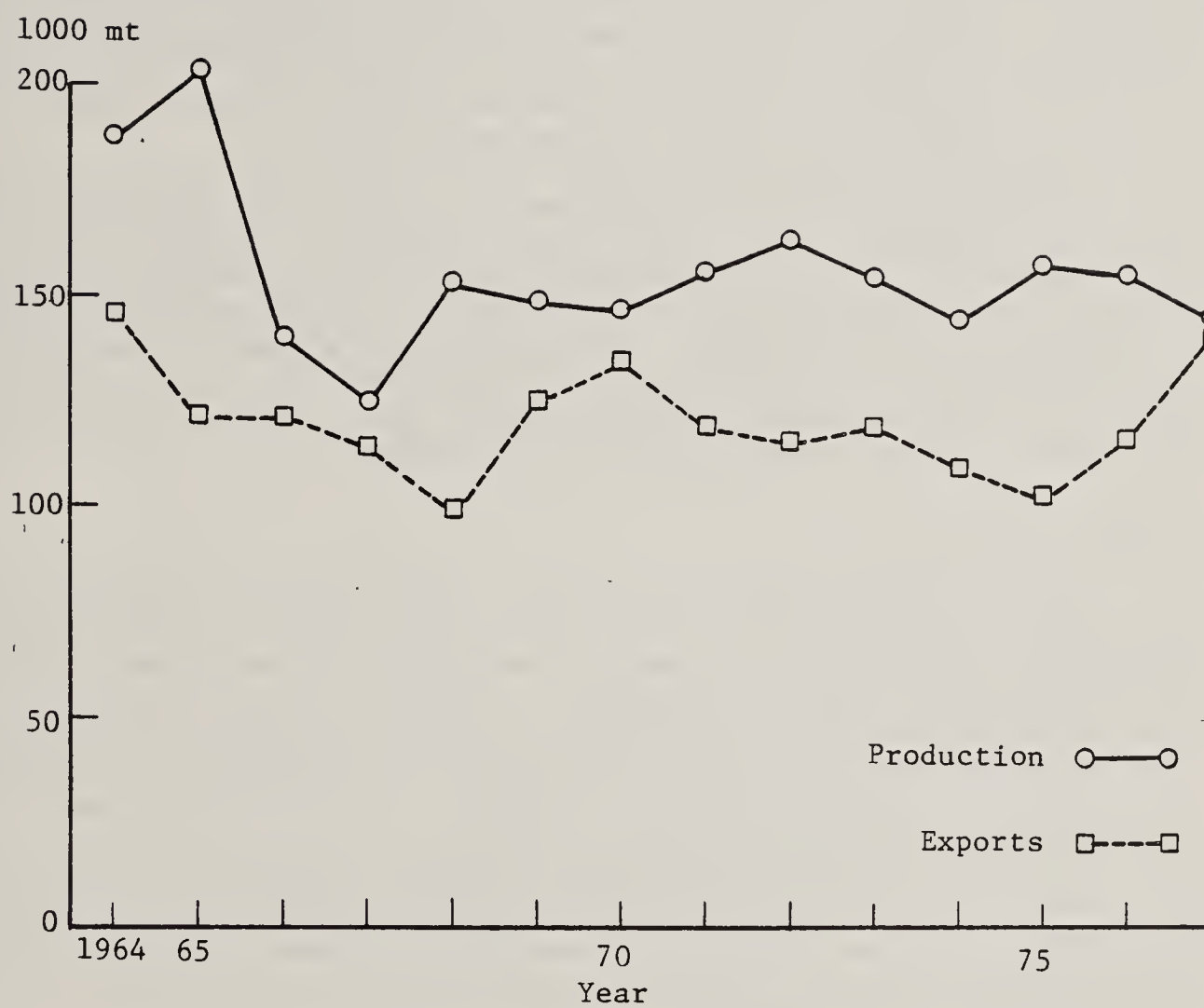


Figure 1.23 Cotton lint production and exports, Syria, 1964-77.

Source: Appendix Table A47.

increased 131% and 127%, respectively, so that total income from cotton has grown slower than the cost of living. Cotton pricing is discussed further in the policy section.

1.2.6.2 Cotton Seed

The greatest part of seed cotton harvested in terms of weight is the seed. Its uses include cotton seed meal for livestock feed and most importantly vegetable oil. Production of cotton seed oil has exhibited no trend because, like cotton lint, total seed cotton production has remained relatively stable (Appendix Table A47). Through 1971 approximately 20% of the oil production was exported, but beginning in 1972 government policy has been to prohibit exports to satisfy growing domestic consumer demand. Per capita consumption increased in 1972-73 but is has been declining since, because total production has not increased. With no cotton seed oil imports, in a sense Syria is self-sufficient in cotton seed oil.

Prices for cotton seed oil have been to increase, especially through 1974 (Appendix Table A36). When prices more than doubled from 1974 to 1975, the government established a voucher system for cotton seed oil like that for rice. Under the voucher system each consumer may buy up to 250 grams of vegetable oil per month at the ration price and additional purchases at a "market" price. The voucher and "market" prices have remained at the 1975 level and thus their real prices have been declining with inflation.¹ Cotton seed oil prices are the same throughout Syria, an apparent advantage to more prosperous areas like Damascus.

1.2.6.3 Olive Oil

Olives are used primarily for oil. The production trend for olive oil is positive with rather large annual fluctuations common to olive production (Figure 1.24). Olive oil production has more than supplemented the stable cotton seed oil production. Increases in olive production have exceeded population growth, thus per capita consumption of olive oil has been increasing. The self-sufficiency goal appears to be fulfilled as imports are negligible; exports, which were minor, have dropped to zero apparently to satisfy domestic demand.

Olive oil prices move relatively freely as almost all processing is in private hands. Prices at the wholesale and retail levels have doubled since 1963, an annual rate of increase which is among the lowest among food products. Most inflationary pressures have occurred since 1971 in Damascus and 1973 in Aleppo.

1.2.6.4 Sugar

An important part of the Syrian diet, sugar consumption per capita is approximately 25 kg per year. Government policy is for greater domestic sugar supplies. Two new refining plants have been added to the existing three. Self-sufficiency in sugar has become more remote since 1968 when imports increased substantially and remained at high levels. Sugar beet

¹An estimated subsidy cost for vegetable oil in 1977 is 4.5 million S.P., using the 1977 production, 250 grams per person per month, 148 piasters/kilo wholesale voucher price, and 240 piasters/kilo cost of vegetable oil supplied by the General Institute of Consumption-Wholesale Division.

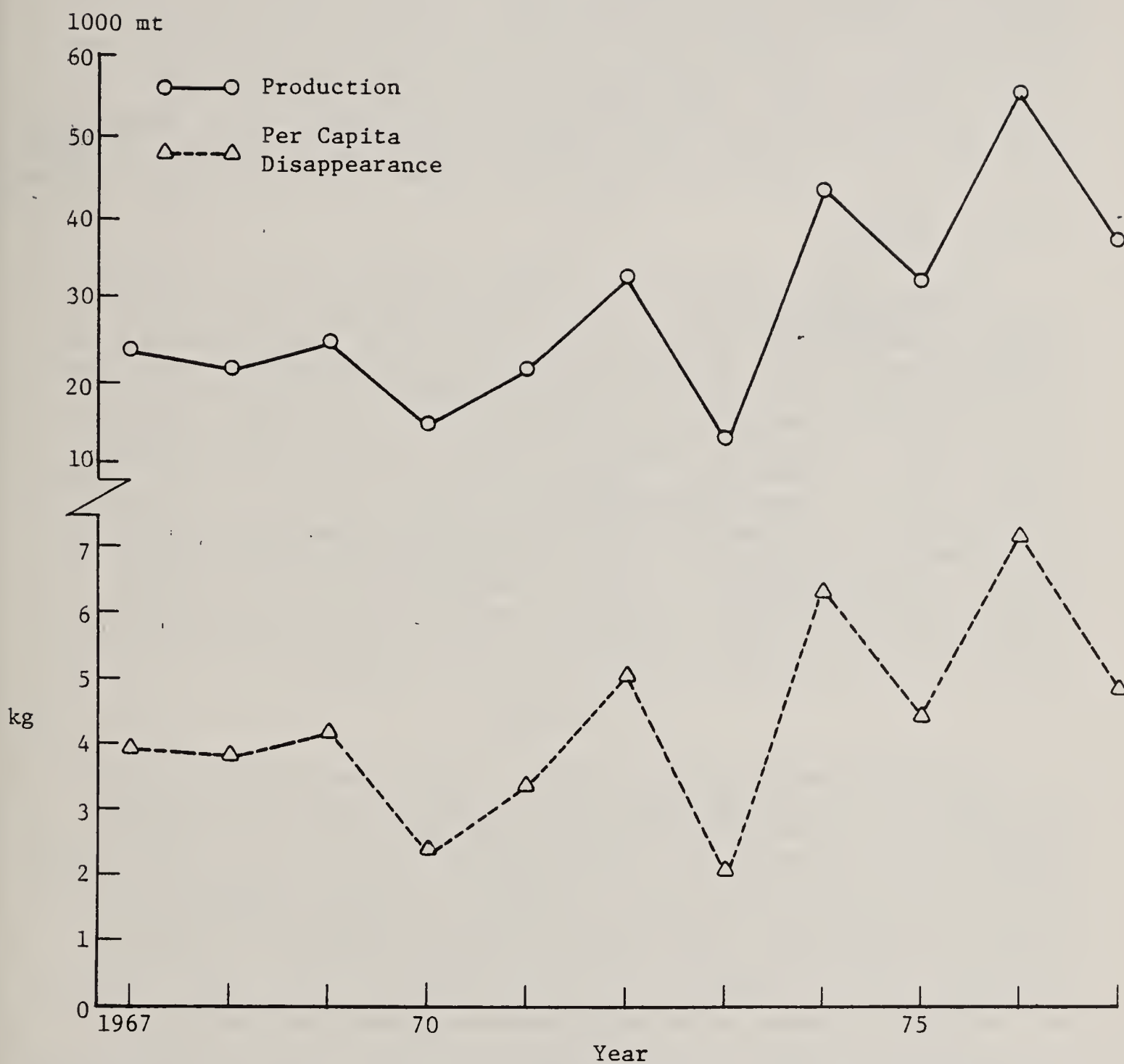


Figure 1.24 Production and per capita disappearance of olive oil, Syria, 1967-77.

Source: Appendix Table A65.

production exhibited a positive trend during 1964 to 1971 but no trend is apparent since 1972 (Figure 1.25).

As with rice and cotton seed oil, a voucher system is applicable for sugar purchases. The rationed amount per month for each consumer is 1.5 kg, approximately two-thirds of total per capita consumption. Voucher prices, established in 1973, have remained at 1972 levels to date, implying declining real prices (Appendix Table A38). Market prices since 1973 have doubled. With other voucher prices, sugar prices are equal throughout Syria. Recently, imported sugar has actually been priced below the voucher wholesale price, thus generating a per unit profit for the government. Since the government-supported sugar beet price is considerably above world levels, higher sugar production may result in monetary transfers from consumers to producers of sugar beets, sugar, and refined sugar importers.

1.2.6.5 Tobacco

Tobacco, another important cash crop, is grown on flat as well as hilly and mountainous terrain, from near Jordan to the Turkish border. Production has exhibited a positive trend since 1970 when the use of more fertilizer and a switch to American varieties were encouraged. Syria has been a traditional exporter of raw tobacco (Figure 1.26), but the terms of trade generate losses from the importation of more valuable cigarettes (Table 1.12). Per capita consumption has been relatively stable during 1964 to 1977 at between 1.5 - 2.0 kg, omitting the poor 1971-72 crop years. Tobacco prices to farmers are comparable to North Carolina, USA, prices; retail prices are increasing faster for imported brands than for domestic ones. Tobacco monopoly authorities readily indicated that 20 percent or more of the cigarette sales are lost to smuggled brands due to the 40 percent price differential. Apparently tobacco generates considerable revenue from domestic cigarette sales but is not directly earning foreign exchange due to the barter agreement with U.S. companies.

1.2.7 Summary

Agriculture and consumption habits in Syria have undergone changes over time. To meet rising demand from increasing population and higher incomes, large increases in plant and animal supplies (production and imports) have been necessary. After a serious decline in total agricultural production during the second half of the 1960's through the early 1970's, plant production has increased substantially, particularly feed grains, fruits, and vegetables. Wheat production has increased but the vagaries of weather result in large annual fluctuations. Cotton and sugar beet production have not increased. In animal production, dairy, eggs, poultry, and beef have increased output while sheep meat output has declined.

Progress in achieving self-sufficiency has been lacking except for a few commodities such as potatoes, dairy, and eggs. Imports have continued to grow in weight and value, contributing to a balance of payments problem. Prices for foodstuffs have been increasing rapidly and now outpace the general price indices at the retail and wholesale levels. Consumers have made changes in their diet: cereal consumption has remained relatively stable in spite of decreasing real prices, while fruit, vegetable, dairy, and egg consumption (per capita) have increased despite increasing real prices.

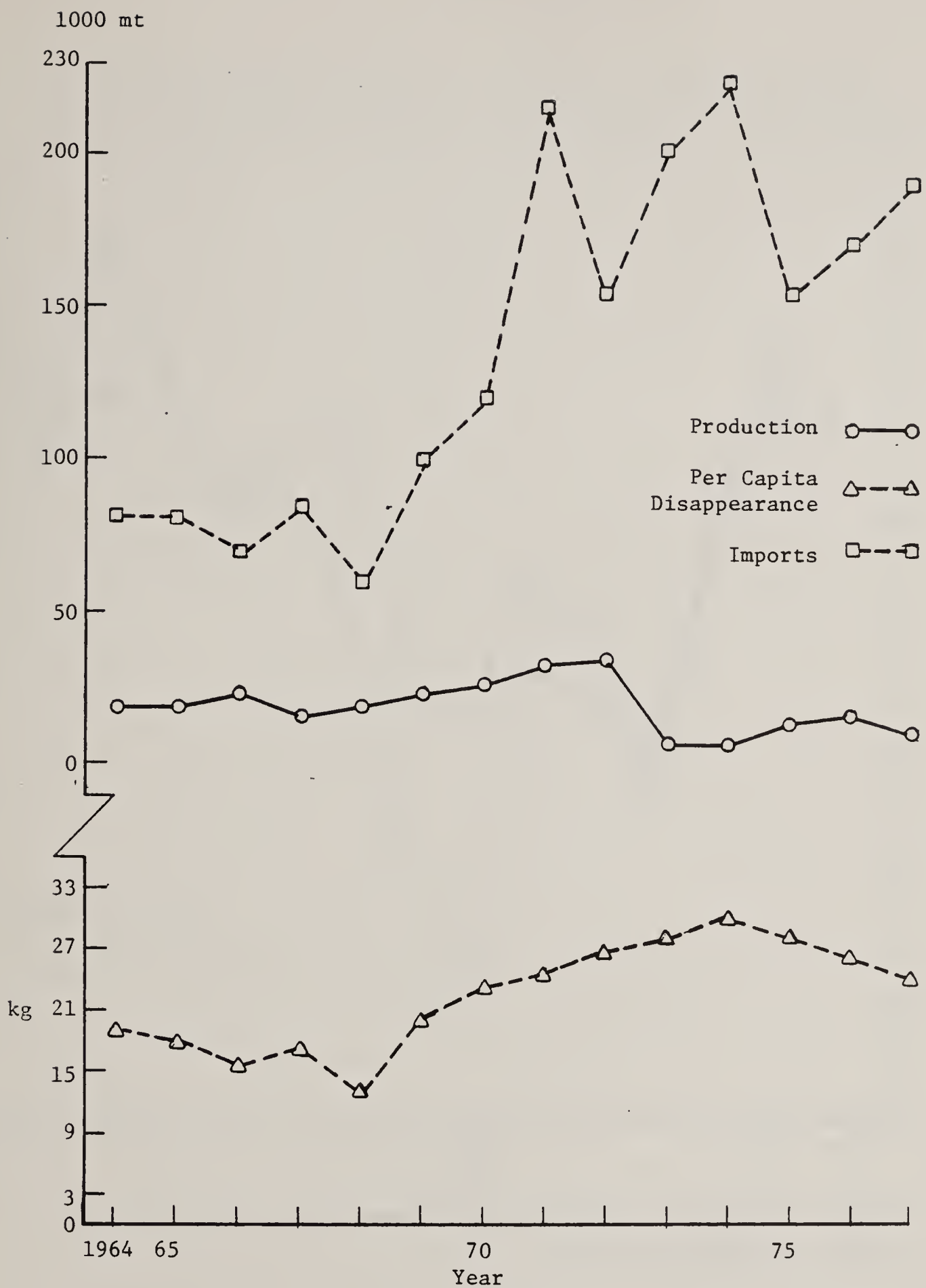


Figure 1.25 Sugar production, imports, and per capita disappearance, Syria, 1964-77.

Source: Appendix Table A46.

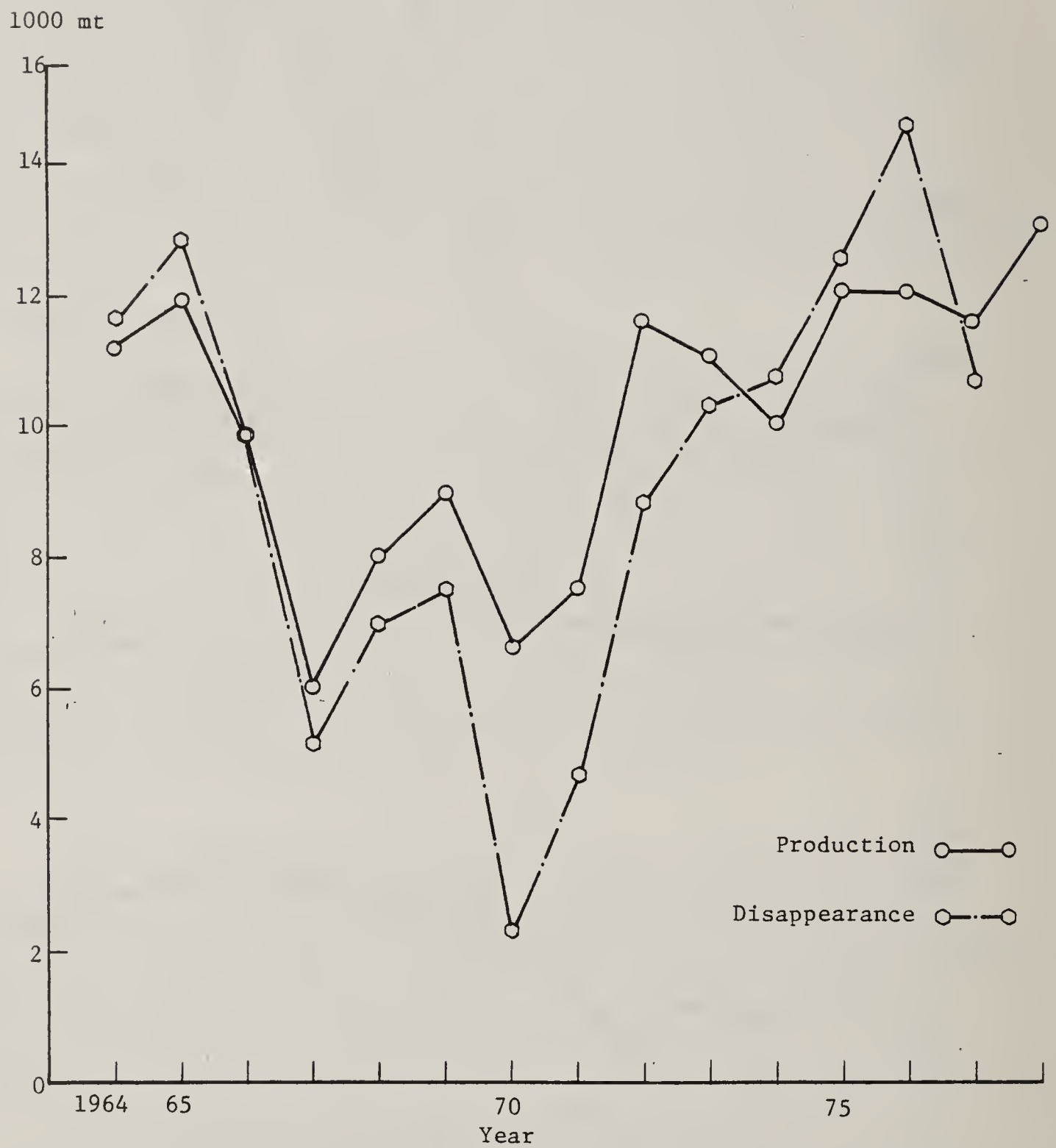


Figure 1.26 Tobacco production and disappearance, Syria, 1964-78.

Source: Appendix Table A48.

Among the industrial crops, cotton was the leading earner of foreign exchange until 1974 when it was exceeded by petroleum exports. Cotton is still a major source of foreign earnings for Syria but its production has been discouraged by recent SARG policy. [Evans].

1.3 PRICE POLICY APPRAISAL

Since SARG is directly involved in production, marketing, and price policy for all major commodities and several lesser ones, a comprehensive appraisal of the operation and results of existing programs bearing on price policy would be a significant undertaking. Hence, given the assessment nature of this short-term project, only highlights of the major elements of SARG agricultural price policy as observed by the team during the two months in SAR will be discussed. Several evaluative comments on price policy have already been presented on Sections 1.1 and 1.2 of this report.

1.3.1 General

Price policy, as well as its results, can only be assessed with regard to policy objectives and the performance of the sectors concerned. These objectives included stabilizing prices, increasing producers' income, reallocating production, achieving self-sufficiency in some crops, protecting producers and consumers from exploitation by middlemen, improving nutrition, increasing use of cooperative marketing and keeping product prices received by farmers in line with input prices paid.

A broad generalization would be that only since the mid-1970's has Syrian agriculture performed as well as during the early 1960's. (See Table 1.3). That is, production has not been as consistently high as during that period. Per capita production has been lower recently than during 1961-1965, Table 1.3. Thus, SAR has been forced to increase its dependence on imports and/or reduce exports of certain agricultural products. Production, consumption, trade, and self-sufficiency trends for all major items were discussed in Section 1.2. Note that the Food and Live Animals group was becoming increasingly dependent on imports between 1970 and 1977, Table 1. 12. Only textile fibers showed an improved trade balance during this recent period. Only eggs, potatoes, and vegetables have experienced improvement in their "self-sufficiency" ratios recently, Table 1.13. This is in spite of high levels of total agricultural production in 1975-1977, Table 1.3. Gains achieved in total production have been diminished by the rapid growth in Syrian population and improved diets. Small farm size, population growth, erratic rainfall, and agricultural labor shortages are major constraints on Syria's ability to fulfill the various objectives of the five-year plan.

At this point, observations on general price policy items made earlier will be reviewed briefly before examining selected commodities in more detail.

Agricultural production is probably one of the most difficult economic activities to manage within any economy due to the small scale of production, perishability, and the effect of weather on yields. Marketing of agricultural and livestock products, particularly highly perishable items, is even more complex due to the coordination of assembly, processing, storage, and distribution activities required to provide food supplies evenly throughout the country during the year. SARG needs to critically evaluate their continuing thrust into both the regulation of production and, in particular, actual marketing operations. Monopoly of the cereals, cotton, tobacco,

sugar beets, and peanuts areas plus control over food and feed imports and exports provides SARG considerable power as well as responsibility in the agricultural sector. It appears that SARG may currently be at a point of over-expansion in the production, and in particular, marketing activities in agriculture. Why do the authors believe this to be true? Specific situations will be provided under commodity sections to follow. Examples offered here will not necessarily prove that SARG is too involved in agriculture. However, evidence and experience from other countries tend to support the general proposition that while government price supports and hectareage programs can increase production and allocate major crops, government attempts at regulating agriculture from production through marketing have not been particularly successful and frequently wasteful.

The difficulty in effectively administering the production and marketing of several crops and/or livestock products is great because of substitutibility among crops by producers and among end-products by consumers. Slight misjudgements by SARG in terms of price setting and production planning can result in surpluses or shortages of specific items not to mention the implied misallocation of resources. These shortages and surpluses are not always apparent due to price regulations being violated and/or the illegal movement of commodities among Turkey, Jordan, Lebanon, and Syria in response to differential prices among these states. In contrast, the control of a few major crops with some marketing activities to control the excesses of the sector would seem to be the more fruitful route. Subsidization of inputs--fertilizers, credit, improved seeds, and so on--is a good program for increasing and reallocating production when used with price floors for major crops.

Widespread attempts to process and market most of the agricultural produce seem unwarranted in view of the objectives of the 5-year plan. A major concern seems to be with exploitation by middlemen. This should be largely solvable by the distribution of more price and supply information, modest counterbalancing trade activities by government companies, as well as encouraging production with farm price supports and input subsidies. Attempting to dominate the whole of agriculture production and marketing could be very costly for SARG.

Another relevant point concerns how well current SARG programs are performing. Are they working as planned? Actually, only those closest to the planning process know and even they do not seem to be aware of the total costs of the programs. We understand that all plans were evaluated annually in terms of target volumes but not in terms of costs.

Price stability has been an important objective of the SARG agricultural program. It is important to note that SARG price programs were conceived during a time when world prices were quite stable, i.e., the 1960's, Figure 1.27. Using cotton and wheat as examples of major world crop prices, we see these prices were very stable from 1960 until about 1971. Thus, setting prices and planning for production, consumption, exports, and imports should have been much simpler before 1972 than since. There was a critical change in the planning environment in 1971. Prior to that time agricultural crop prices were similar in behavior to administered manufactured items' prices. Clearly, prices are much easier to administer when conditions are stable than when uncertain as has been the case since 1971. Thus, while Syrian cereal, cotton, tobacco, peanut, and other major supported crop prices could easily be set at higher levels as world prices rose, it apparently has been politically difficult to adjust downward as world prices fell.

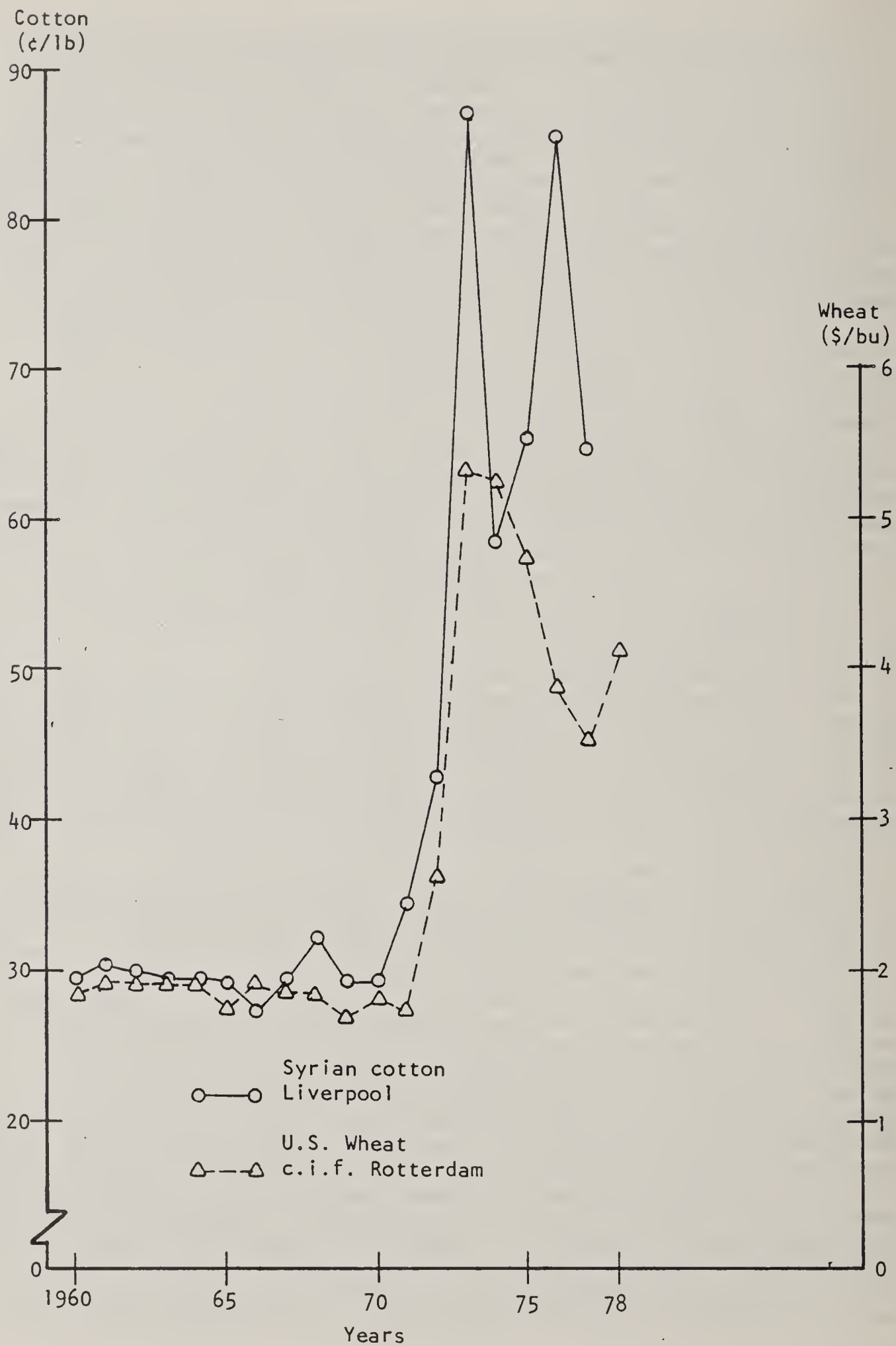


Figure 1.27 Season average prices for Syrian cotton at Liverpool and U.S. wheat at Rotterdam, 1960-1978.

Of price reported since 1967, only lentils prices have been reduced by SARG.¹ Some degree of flexibility should be considered in setting farm prices so that domestic prices do not get far out of line with import prices. It may be preferable to set price floors or support prices rather than specific exchange price levels. Price floors permit prices to (1) increase as demand exceeds supply and (2) return to the floor as supplies exceed demand. This would promote some internal direction to producers and planners in Syria. Setting specific exchange prices where supply will equal demand is an impossible task. However, with price floors, the government can absorb the surpluses and let higher prices ration supplies when shortages occur.

The attempt to set both wholesale and retail prices for numerous food items does not seem well advised. Further, it does not seem practically possible due to the reasons mentioned in Section 1.1. Assembly, storage, processing, and distribution activities are too complex to apply a fixed margin to many products. Here, again, the use of limited government marketing and monitoring efforts combined with freer international trade should suffice to thwart the potentially exploitive middleman.

Whenever prices are set at levels other than those dictated by market conditions, benefits and costs are altered. Syrian wheat producers receive high wheat prices while consumers pay very low bread prices. For example, the average wheat price received by U.S. farmers during 1977/78 was \$85.58 per metric ton while the SAR fixed price was \$153.84 per metric ton not including a \$30.77 per ton early delivery premium. However, U.S. 1977 retail bread price was about 78¢/kg compared to 14¢/kg retail for bread in Syria (55 Piasters/kg). Since Syrian producers received 64 to 69 Piasters/kg for wheat and bread costs only 35 to 55 Piasters/kg, a considerable transfer payment to bread consumers is involved. Actually both Syrian producers and consumers are subsidized because recent wheat prices were significantly greater than world wheat prices and consumers continued to pay extremely low bread prices. If the economy were generating all of its own income, then some citizens would be penalized in order to subsidize wheat producers and bread consumers. If government income was from progressive taxes, then the wealthier people would be subsidizing the lower income people. A cursory look at SARG's budget suggests that a significant amount of government revenue may come from external grants and loans so that subsidy costs may not be of immediate concern. However, the questions of how much subsidy is involved in various government agricultural operations is of concern because of the question of economic efficiency. Both price/cost and operating subsidies are of interest. The team could not compare the efficiency of private firms with government operations but several conversations suggested that government operations were inefficient.² It would be ironic if government production regulations and marketing operations were costing Syrians significantly more than if left to the private sector.

The team spent considerable time contacting personnel in the State Planning Commission, Ministry of Supply and Internal Trade, Ministry of Finance and other agencies trying to determine the source and allocation of direct and operating subsidies for various commodities without much success.

¹SAR, The Annual Agricultural Statistical Abstract 1976, Min. of Agr. and Agrarian Reform.

²In some cases, government companies were required to hire handicapped people for social welfare reasons. This is not the inefficiency alluded to by interviewers.

Six hundred million Syrian pounds have been budgeted in recent years for subsidies for flour, sugar, rice, vegetable oils and some fuels but actual deficits may be much higher according to official sources. The budgeted wheat subsidy was 430 million S.P. for 1978. If we assume 1978 wheat production as 1.6 million tons and farm price as approximately 680 S.P. per ton, then the value of production would be 1,088 million S.P. Thus, the flour subsidy would be 40 percent of the total farm level value of the wheat crop. Is this too high? It is clearly a relatively large subsidy to wheat producers and flour users. The rice subsidy, at 114 million S.P., was one-fourth that for wheat and sugar was one-fifth at 95 million S.P. These subsidies are relatively large and will continue to grow as farm prices are set at higher levels unless consumer prices are increased accordingly. The planned subsidies are probably lower than actual subsidies. The more reliant the SAR agricultural economy becomes on subsidies, the more maladjusted it becomes relative to both domestic and international supply and demand conditions. This is why a careful analysis of subsidy dependence on a crop by crop basis is needed. Both price and input subsidies must be considered.

1.3.2 Cereals

Major food and feed crops are probably the most amenable to influence by price and production policies because of their storability and need for processing before consumption. This is particularly true of wheat. Nevertheless, increasing amounts of imported wheat have been required recently due to production not keeping pace with population growth.

Irregular rainfall plagues SARG's comprehensive production and marketing program for cereals. Supply problems are further hampered by producers keeping 50 percent or more of the crop, depending on total production. Many producers continue to make bread from their own wheat although not economical based on the wheat/bread price ratio. Cereals Organization people suggested that the government was trying to get (a) everyone to eat commercially baked bread and (b) up to 85 percent of the bread production for government bakeries. One source reported government bakeries currently have about 9 percent of the bread supplied by bakeries.

If a large segment of the population is currently baking bread from their own wheat, then government subsidy costs will rise markedly if these people switch to bakery bread. Current attempts to move consumers from 35 Piasters/kg bread to 55 and 85 Piasters/kg bread will help reduce subsidy costs but this effort may be overwhelmed by a larger percentage of the population using bakery bread.

Theoretically, we could attempt to evaluate the effects of SARG price policy for various crops in terms of supply response and allocation if other variables such as hectarage, marketing costs and selling prices were free to move in response to changes in supply and demand. However, SARG policy apparently determines hectarage planted and purchases and allocates all output among flour and other end products. For example, wheat hectarage increased 45 percent from 1967-69 to 1974-76, production increased 87 percent and price by 68 percent. In contrast, seed cotton price increased 65 percent, production increased only 10 percent and hectarage decreased by 27 percent during the same period, Table 1.21. Is this divergence in wheat and cotton production and, particularly, hectarage to be explained by price incentives, subsidized inputs or direct allocation by the SARG "intensification of agriculture" plan? Barley price increased 127 percent 1967-69 to 1974-76 but

Table 1.21 Changes in hectarage, production, yields, and prices, major state regulated crops, 1967-69 and 1974-76, three-year averages.

Crop	Unit	3-Year Period		Percent Change
		1967-69	1974-76	
Wheat	(1000 Ha)	1104.0	1606.0	+ 45.5
	(1000 Mt)	884.1	1656.7	+ 87.4
	(Piasters/kg)	28.6	48.0	+ 68.0
	Yield			+ 28.8
Barley	(1000 Ha)	643.3	960.0	+ 49.2
	(1000 Mt)	576.0	770.0	+ 33.6
	(Piasters/kg)	16.8	38.2	+ 127.2
	Yield			- 10.4
Lentils	(1000 Ha)	95.3	109.6	+ 14.7
	(1000 Mt)	77.4	95.4	+ 23.2
	(Piasters/kg) ^a	40.0	99.0	+ 147.0
	Yield			+ 7.4
Seed Cotton	(1000 Ha)	272.3	198.3	- 27.2
	(1000 Mt)	368.0	403.0	+ 9.6
	(Piasters/kg)	79.3	131.6	+ 66.0
	Yield			+ 50.5
Tobacco	(1000 Ha)	10.3	17.0	+ 65.0
	(1000 Mt)	7.7	11.4	+ 48.0
	(Piasters/kg)	32.3	59.5	+ 84.2
	Yield			- 6.5
Sugar beets	(1000 Ha)	7.1	7.7	+ 7.3
	(1000 Mt)	169.7	189.5	+ 11.6
	(Piasters/kg) ^b	70.0	126.6	+ 81.0
	Yield			3.1
Peanuts	(1000 Ha)	8.7	12.8	+ 47.1
	(1000 Mt)	14.8	21.5	+ 45.2
	Yield			- 1.3
Total	(1000 Ha)	2149.0	2936.9	+ 36.7

^aLentils base price 1969-71 for red lentils.

^bAutumn price.

Source: SARG, Agr. Stat. Abstract 1976, MAAR.

hectarage increased only 49 percent and production by only 34 percent. Lentils price experienced the largest relative increase, 147 percent, but lentil hectarage increased only 15 percent and production 23 percent.

In contrast to the percentage changes in hectarage, total production, yields and prices for cereals and other "controlled" crops between 1967-69 and 1974-76, changes for major "uncontrolled" vegetable crops were considerably greater on the whole, compare Table 1.21 and 1.22. Barley and lentils had the largest relative price increase and the lowest relative increase in production (except for cotton) Table 1.21. Yields increased only modestly or actually declined during the eight year period except for cotton and wheat. Vegetable yields increased markedly during the same period, Table 1.22.

Of course, these crude comparisons between "controlled" and "uncontrolled" crops prove nothing. There may be other good explanations for the apparent discrepancies in performance. However, it also may be that vegetable production has expanded more rapidly and experienced greater yield increases than major field crops due to their freer economic environment. "Controlled" crop producers know they can get only government prices and no higher. Meanwhile, vegetables' prices have increased more rapidly than government established prices, due apparently to supply and demand conditions. Price supports for major crops that would permit prices to reflect demand conditions might provide extra stimulus to producers.

Between the effects of variation in rainfall and government decisions bearing directly on land use, it appears too difficult to untangle the effects of higher prices on supply performance. Of course, we do not know the profitability rates among crops.

Plans for wheat production are apparently based on projected "consumption needs" for next year of 150-160 kg/capita. These needs appear to be based more on a desired standard quantity per person than on economic demand.

Setting farm level prices on a cost of production plus profit basis is subject to the possibility of establishing prices above those needed to provide desired production or obtain the commodity by imports. While Syrian wheat prices may have been close to or below world export prices prior to 1976, the fixed wheat price since has clearly been in excess of the cost of imported wheat:

SAR and North European Price Wheat Price

	SARG price ^a	U.S. dark northern spring 14% Rotterdam ^b
	S.P. per metric ton	
1973	420	764
1974	510	807
1975	570	729
1976	580	573
1977	750	511
1978	770	571 ^c

^aIncludes early delivery premium

^b\$ per metric ton x 3.9 conversion rate;
year beginning June; simple average

^c7 months June-Dec average

Table 1.22 Changes in hectarage, production , yields, and prices, major "free market" crops, 1967-69 and 1974-76, three year averages.

Crop	Unit	3-year period		Percent change
		1967-69	1974-76	
Watermelon	Ha	64,556	74,894	+ 16.0
	Mt	412,821	514,718	+ 31.2
	SP/kg ^{a/}	31.3	73.6	+ 135.1
	Yield			+ 13.1
Tomatoes	Ha	17,532	29,417	+ 67.8
	Mt	179,008	429,131	+ 139.7
	Sp/kg ^{a/}	59.3	114.0	+ 92.1
	Yield			+ 58.4
Muskmelon	Ha	25,673	21,036	- 18.1
	Mt	139,762	181,306	+ 29.7
	Yield			+ 58.4
Cucumber	Ha	10,487	13,871	+ 32.3
	Mt	69,085	163,144	+ 136.1
	Sp/kg ^{a/}	69.0	145.6	+ 111.1
	Yield			+ 78.5
Potatoes	Ha	4,142	9,250	+ 123.3
	Mt	45,804	120,696	+ 163.5
	SP/kg ^{b/}	33	81.6	+ 147.5
	Yield			+ 18.0
Dry onions	Ha	5,128	7,927	+ 54.6
	Mt	47,295	122,189	+ 158.4
	SP/kg ^{c/}	25.0	62.6	+ 150.7
	Yield			+ 67.1
Squash	Ha	4,473	6,360	+ 42.2
	Mt	39,642	98,629	+ 152.6
	Yield			+ 28.3
Egg Plant	Ha	4,473	6,360	+ 42.2
	Mt	49,745	103,268	+ 107.6
	Yield			+ 46.0

a/ Damascus retail, b/ Damascus wholesale, c/ Damascus wholesale, red onions.

Source: SARG, Agr. Stat. Abstract 1976, MAAR, and CBS, Statistical Abstracts.

Supporting all major crop prices give producers little incentive for choosing among alternative crops. Further, when producers (Peasants Union) are involved directly in establishing cost-of-production-plus-profit prices, full costs of production are probably more than met, i.e., prices are probably set higher than necessary for the desired results. Clearly, man inputs are on-farm inputs which do not increase directly with the general price level or the cost of off-farm inputs. Unfortunately, the team was unable to locate any meaningful farm income data, either macro or micro. Until some idea of profitability among enterprises and sizes of farms can be obtained, it will impossible to evaluate the effectiveness of price policy in much detail. Presumably the farm survey will obtain data for estimating farm income by size, location, and enterprise. Hopefully the survey will also provide some idea of the use of subsidized inputs. Are these inputs used on the designated crops or on a more profitable crop? Several interviews suggested the latter.

1.3.3 Cotton

Cotton appeared to be one of the best organized and operating of the monopolized programs for major crops. Cotton was the major earner of foreign exchange until 1974 when superceeded by petroleum.¹ The relatively straight forward nature of cotton production and processing facilitates its monopolization. Unlike other major crops, total cotton hectarage dropped 27 percent between 1967-69 and 1974-76 (Table 1.21) due to the policy of encouraging other crops at cotton's expense. Cotton's yield increased more than any major crop but cotton is the only major irrigated crop.

Price policy seems to be working well for cotton in terms of increasing yields per hectare. However, the raising of producer seed cotton prices annually will eventually require a subsidy for cotton growers if and when price exceeds export prices for Syrian cotton. The basic price of lint cotton sold to local Syrian textile mills compared to the average Liverpool price for Syrian cotton, CIF North Europe has been as follows:

U.S. Cents Per Pound

	SAR local mills	CIF N. Europe ^a	Difference
1971/2	21.86	38.81	16.95
1972/3	22.74	42.78	20.04
1973/4	23.90	86.61	62.71
1974/5	37.68	57.87	20.19
1975/6	40.47	65.61	25.14
1976/7	47.45	85.17	37.72
1977/8	53.35	64.06	10.71

^aat 3.9 conversion rate pounds to dollars.

Source: Cotton Marketing Organization

¹F. B. Evans, Cotton in Syria, FAS-M-280, For. Agr. Service, U.S. Dept. of Agriculture, April 1978.

The policy of reducing cotton hectarage and holding production constant so that more sugar beets and other commodities can be produced seems contrary to Syria's apparent comparative advantage in cotton. Comparative advantage is indicated by increased cotton yields in the face of adverse cotton prices compared to those for cereals, soybean, and sugar beets. Further, cotton expanded rapidly from 1949 until 1965 when production was reduced due to land reform and nationalization of gins. [Evans].

As long as policymakers are aware that the drive for increased self-sufficiency in food is costing them foreign exchange from the crop which may have the greatest comparative advantage, then enough has been said.

The organization, operation, and performance of the Cotton Bureau and the Cotton Marketing Organization were impressive and might be used as a model for other organizations.

1.3.4 Vegetables and Fruits

Just as cereal crops are probably the most adaptable to state planning and regulation, aside from the severe yield variations in Syria, fruits and vegetables are probably the least amenable to regulation. Perishability, small scale production, weather, and variety of products requires considerable flexibility throughout the production, harvesting, assemble and distribution phases. Rigid pricing can result in surpluses or deficits due to the perishability of fresh fruits and vegetables. In general, vegetable production has increased more rapidly than the major regulated crops. Yields and acreage both have expanded significantly, possibly due to the price increases associated with increasing demand, compare Tables 1.21 and 1.22.

The General Organization for Fruits and Vegetables has been in operation little more than a year and clearly faces a challenge in procuring and distributing fresh produce through its own retail shops in competition with private sellers. SARG must carefully evaluate the efficiency of its state produce system because of the well known problems of administering fresh vegetable and fruit marketing.

Two specific problems encountered regarding state marketing involved (1) contracting before harvest for produce at a predetermined price and then having to sell at the prevailing market price upon delivery and (2) the length of time involved in getting a producer loan from state sources. Vegetable prices are so dynamic, usually due to changes in supply, that forward contracting for production at a fixed price is risky. Large supplies would reduce price and result in loss to the contractor at resale. Thus, if SARG becomes increasingly involved with fresh produce they must be prepared to deal with the inherent risks.

As to the ease with which GOFV can contract for production, one source indicated a grower could get a production loan from a private broker in an hour while requiring a week at the bank. GOFV will need to be able to provide such service if they are to compete successfully with the private sector.

The possibility of produce loss from waste due to unresponsive marketing should be of great concern to SARG. Efficient produce marketing requires timely scheduling and pricing to avoid loss.

The team felt the present produce pricing system was working well in stimulating production and generally satisfying consumer needs because official prices were not always enforced when market conditions were out of line with administered prices. Due to the complex nature of the fresh produce industry many aspects were not assessed.

1.3.5 Sugar

Prices to Syrian sugar beet growers may be the highest in the world. Syrian sugar beet growers received 125-140 S.P./metric ton in 1976 while U.S. growers (who are also subsidized) received approximately 86 S.P./metric tons. In spite of the relatively high prices, sugar production in Syria has not increased appreciably since the mid-1960's, Appendix Table A46. Apparent consumption (i.e., disappearance) of sugar in Syria doubled from 1964-66 to 1975-77 and the proportion imported increased from 78 percent to 84 percent. Clearly, self-sufficiency is not being attained in sugar even with high and steadily increasing prices for sugar beets. Some producers have been required to grow sugar beets as opposed to crops of their preference. These factors suggest that sugar does not have a comparative advantage for Syrian farmers, thus preventing the desired supply response. The best economic solution may be to use the irrigated hectarage for other crops and import even more sugar due to expected abundant world supplies and moderate prices. However, since the Arab Unity Economic Council has advised members to be self-sufficient in sugar, political considerations seem to outweigh economic considerations in the case of sugar. Many countries, including the U.S., protect their domestic sugar growers beyond economic reasonableness, so SARG is not unique in its sugar policy.

The sugar subsidy in 1978 was 94,771,000 S.P. How this subsidy was incorporated into the sugar program was not determined by the team but it seems large by any measure.

Let us attempt a rough estimate of sugar value at the wholesale level in Syria. Total sugar disappearance during 1975-77 was around 204,400 metric tons or 26.5 kg/capita, Appendix Table A46. Population was about eight million in 1977. Rationed quantity at 18 kg/capita rationed would require 144,000 mt, leaving 60,400 mt for "free" use. At wholesale values that is:

Category

quota .82 S.P./kg x 144 mil kg = 118,080,000 S.P.

"free" 2.92 S.P./kg x $\frac{60.4 \text{ mil kg}}{204.4 \text{ mil kg}}$ = $\frac{176,368,000 \text{ S.P.}}{294,448,000 \text{ S.P.}}$

so that a 94,777,000 S.P. subsidy would be 32 percent of this estimated wholesale value. The weighted average wholesale price is 1,44 S.P./kg. Growers were paid 130 S.P. to 145 S.P. per metric ton for autumn and summer beets, respectively. At 16 percent sugar yield that is 81 to 90 Piasters kg for sugar in beet form. But these prices are for only 15 percent or so of the crop as the remainder is imported at similar prices for raw sugar. Thus, the average wholesale price for sugar appears to be significantly greater than the price being paid for imported sugar and the domestic crop. What we do not are the processing costs for the domestic crop and handling and distribution costs for the imported sugar. However, it appears that sugar

may be breaking even or be profitable for SARG at current world prices due to profits on imports. The U.S. retail price was 1.85 S.L. per kg in 1977, considerably below the "free" price of 3.00 S.L. in Damascus.

Since imported sugar costs appear to be significantly less than domestically produced sugar, subsidy costs will increase if Syria becomes more self-sufficient in sugar under current and projected world supply/demand conditions.

1.3.6 Tobacco

The tobacco monopoly seemed to be a smoothly operating organization from production through marketing. Tobacco makes money for SARG as no known price subsidies are required. Again, prices to growers are based on costs of production which are probably inflated due to the method of setting costs. One major problem was that smuggling has reduced sales of imported cigarettes. Smuggled U.S. brands sold at 1.5 S.P. per pack versus legal price of 2.5 S.P. Thus, Syrian consumers who pay legal prices are clearly subsidizing the tobacco program.

Tobacco production has expanded due entirely to increased hectareage as yields have decreased slightly on the average, Table 1.21. As with other crops, production units are small. Production has been relatively stable although most hectareage is rain-fed, Appendix Table A48.

1.3.7 Animal Products

If Syrian consumers follow the usual consumption trends as incomes increase, the demand for meat, poultry and eggs will rise dramatically, Table 1.8 and 1.9. The availability of such items will depend on SARG policy to a great extent.

Meat, poultry, and dairy products fall within the "semi-free" pricing system. However, state policy affects the imports and exports of animal products. For example, SARG attempts to hold price down by importing meat and chickens but meat prices have risen faster than other commodities, Table 1.2. Importing to keep domestic prices down obviously lowers the economic incentive for Syrian sheep and poultry producers. Further, some suggested that the threat of nationalization has deterred investment in broiler production facilities.

Problems with administering prices and supply in meats and poultry are similar to those for fresh fruits and vegetables. Perishability makes it imperative that prices be free to adjust to supply and demand in order to prevent surpluses (waste) or deficits.

In spite of the semi-free nature of animal product markets, prices are set for poultry, eggs, and meat in Damascus. Chicken and egg maximum prices were fixed for one and one-half years during one period. This action seems unreasonable in view of the rapidly rising demand for chickens. The setting of meat prices only in Damascus has resulted in some loss to the meat organization because they cannot recover their costs of purchasing and processing sheep. One source estimated losses of 22 million S.P. in 1977 and 20 million S.P. in 1978 due to the cost-price squeeze on the state's Damascus meat operations. Further, government processing and distribution facilities are not used to full capacity because of the cost-price squeeze. One estimate was that the state

provided only half of Damascus sheep meat under the price ceiling and by so doing minimized losses. This is an example of how price policy reduced physical efficiency in marketing.

It seems clear that the meat organization needs the authority to adjust retail prices in line with costs.

Meat, poultry, and vegetable prices have risen more rapidly than other commodity prices in Syria. This is probably due to the increase in demand for these items compared to that for cereals and starchy foods. Hence, the policy should be to promote production of poultry and sheep meat as demand for these products will continue to grow as population and income increase.

Having examined the major commodity groups in general, let us return to some general aspects of SARG price policy.

It can be stated that SARG has officially stabilized prices for major crops and consumer items such as bread, rice, sugar, and vegetable oil through setting prices and rationing. However, in the case of cereals we do not really know at what "price" a large volume of the wheat and barley are selling because the government has generally received far less than half the crop. Is this because producers prefer to keep the remainder of the crop for on-the-farm use or do they sell it for higher prices elsewhere? It is difficult to determine what effect price has on wheat crop acquisitions by SARG. A consistent 38-39 percent of the crop was acquired during 1974, 1975, and 1976 when prices reached the 477 to 541 SL per ton price levels. Of course, these were also larger wheat production years. The percent purchased dropped to 29 percent in 1977 when total production declined and price increased by 20 percent.

Lentils possibly provide an example of the government's breaking the farmer's reservation price level in 1975 and 1976, Figure 1.27. The government purchased only 0.9 to 45.0 percent of the lentil crop during 1970 to 1974. However, when price jumped by almost 80 percent between 1974 and 1975, the government got 79 and 98 percent of production in 1975 and 1976, respectively. This explains SARG's reducing the lentil price in 1977 and 1978. It appears that growers were willing to relinquish practically all of the lentil crop at the relatively high prices for 1975, 1976, and 1977.

An economic explanation of the high crop retention rates by producers would be that they have been getting higher prices or value-in-use elsewhere for wheat, lentils, and barley. Then, as prices rose significantly in recent years, growers have sold more to the government and kept less. Of course, there may be other than economic reasons for the producers withholding large from the market. Unfortunately, the team did not determine the disposition of the non-government wheat, barley, and lentils but this seems of importance in order to determine the value of these major crops to producers.

Major crops' prices have been set on a cost of production basis, largely disregarding world conditions, and have closely paralleled the Damascus Consumer Price Index (CPI) in a relative sense, Figure 1.28 (Logarithmic scale). Thus, the major prices are parity prices to the extent the CPI represents prices paid by farmers. However, farm level costs probably haven't risen as fast as the Damascus CPI so that the government set prices are somewhat inflationary.

How much are the present supported prices aiding farmers on very small production units? Obviously, higher prices are preferred to lower prices but is the hectareage large enough to support a farmer and his

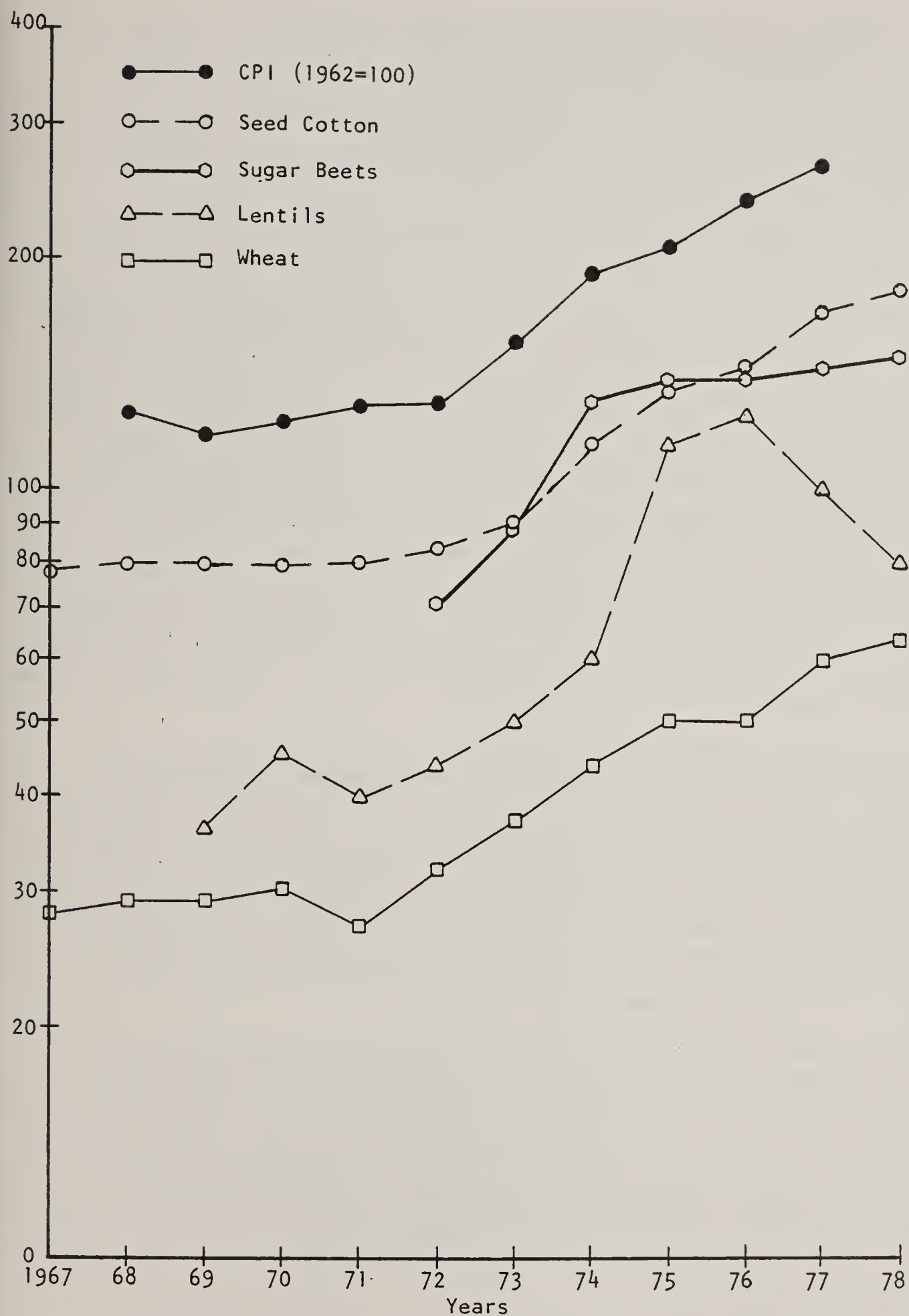
SL/ton and
index

Figure 1.28 Government purchase prices for wheat, seed cotton, sugar beets and lentils and Damascus Retail Consumer Price Index.

family so they won't be discouraged and leave for the city or a neighboring country? The farm survey should help answer these questions. If wheat farmers are selling less than half of their crop to the state, then the support price is only directly applicable to a small volume. However, it does place a guaranteed price floor under the entire crop. The great variation in crop yields must affect farm incomes adversely. Perhaps some type of crop insurance or direct payments to farmers could be used to supplement small farm income.

Finally, the budgeted cost for price subsidies, which is probably considerably below actual subsidies, seems high relative to the value of total agricultural production. The value of agricultural production at current prices was 5898.6 mil S.P. in 1976, averaging 4639.3 mil S.P. during 1974-1976.³ Value of total plant production averaged over two-thirds of total agricultural production at 3342.3 mil S.P. for 1974-76 and 4031.3 mil S.P. in 1976. Thus the 600 mil S.P. for price subsidies would be 10 percent of the total value of agricultural production in 1976 and 15 percent of the total value of plant production. Since this 600 mil S.P. is for known or specified subsidies and there are probably many hidden subsidies, the full extent of subsidies within the agricultural sector may be more extensive than realized.

The program of keeping farm prices high and food prices moderate must be financed from sources outside the agricultural sector. We have noted that SARG's income may be boosted by sources of revenue external to the SAR economy. While the subsidies may not be costing SARG directly, they are inflationary if productivity does not match the money provided by subsidies. Similar inflationary effects occur if SARG is financing subsidies by increasing the money supply. Forker noted the Turkish government's problem with a price policy similar to that of Syria:

"The argument goes that farmers need the increase in price to cover increases in costs and provide a more equitable distribution of income. Narrower margins, the difference between government purchase price and the sales price, for domestic sales are justified as necessary to keep down consumer prices and prevent inflation. However, the higher prices to farmers, the resultant increase in purchasing power, and the resultant greater loss of the government all create inflationary pressure. So the government finds itself on a continuous treadmill of reasons for higher farm prices, narrower margins, and lower consumer prices which generate pressures for inflation and thus in turn a logical base for higher farm prices, narrower margins, etc."

Current government price policy may lead to an increasingly inflationary situation. Consider the effect of all Syrian's buying bread from the state wheat-flour program versus the current situation where most wheat is retained for the farmer's discretionary use. Such activity would greatly increase the cost of price subsidies for the wheat/flour subsector. Increased self-sufficiency in sugar will increase subsidy costs due to the high domestic prices versus world sugar prices. Further, if the drive for self-sufficiency in certain crops infringes on cotton hectareage, cotton production, exports, and foreign exchange will be reduced.

³ CBS, Statistical Abstract 1977, p. 179.

In all, SARG's policies have, at least officially, stabilized prices for major crops and basic food items such as bread, rice, sugar, and vegetable oils. Commodities in freer markets have experienced significantly greater increases in production than have the controlled crops, but these crops--vegetables, fruits, and animal products-- have had some variable and faster rising prices than the major crops. Of course, the increased production is probably associated with these attractive prices.

The major unanswered question concerns the costs of the state's production and market intervention programs. These costs include (1) direct price subsidies, (2) subsidized operating costs for state companies and, possibly, (3) the opportunity costs of using state funds for traditional public services such as schools, roads, hospitals, parks, and other community enhancing facilities and services which would improve the quality of life in rural areas, leaving most of the agricultural production and marketing activities to the private sector. This does not mean that the state should not attempt to direct and encourage production or influence efficient marketing. It is to suggest that careful scrutiny be paid to the total costs of current and proposed programs, costs in terms of both direct monetary and indirect opportunity costs. Other means of subsidizing consumers' and producers' incomes may not result in as severe a misallocation of resources and yet increase total welfare.

1.4 COMMODITY DEMAND PROJECTIONS

SARG bears responsibility for supplying Syrian consumers with major foodstuffs as well as determining the production and trade policies for major industrial crops such as cotton, sugar, and tobacco as discussed in previous sections. Further, an announced goal is a high level of self-sufficiency for major food crops. Thus, SARG must continually plan for consumption both for next year and in the rather distant future due to the time required to obtain significant increases in production and shifts within the crop/livestock mix.

Estimating the total food requirements or consumption needs for 1985 and 2000 based on 1975 consumption involves simply multiplying the desired levels of food items per capita by projected population for 1985 and 2000. Only two datum are needed, the food item per capita base consumption level and the projected population. However, this would simply be a constant per capita consumption figure projected into the future rather than consumer demand projections. The latter should account for changes in (a) relative prices, (b) consumer income or buying power and (c) consumer tastes and preferences. Consumer demand projections attempt to capture the general behavior of the consuming population as they respond to the above mentioned variables. Data required for demand projections include estimates of (a) actual consumption in a base level period (here, 1975), (b) projections of consumer income at constant prices for the desired future years, (c) estimates of income elasticities for the various food items, and (d) population projections. The income elasticities presumably reflect consumers' food purchasing behavior as increases in buying power permit them to fulfill tastes and preferences for an improved and/or more varied diet.¹ Population and income are the main factors in shifting food demand with relative price shifts usually playing only minor roles. A one percent increase in population increases the demand for food by one percent. Increased consumer income over time also raises the demand for food. The following formula illustrates vividly how population and income increases combine to increase the annual rate of growth in food demand. The annual percentage rate of increase in food consumption is:²

$$d = p + gn \quad (1)$$

Where: d = annual compound percentage change in food demand
 p = annual compound percentage growth in population
 g = percent growth in income per capita per year
 n = income elasticity of food consumption³

¹Of course, the higher income level diet may actually be worse nutritionally than the lower income diet. Consumer tastes and preferences and nutrition are not necessarily correlated.

²R. D. Stevens, Elasticity of Food Consumption Associated with Changes in Incomes in Developing Countries, Foreign Agricultural Economics Report No. 23, ERS, USDA, March 1965.

³Income elasticity is the percent change in food consumption with a one percent change in income, other factors held constant.

Population projections provided by CBS suggest SAR population growth at 3.59 percent annually from 1980 to 1990 and at 3.27 percent annually from 1990 to 2000. Thus, based on population change alone, SAR will require an increase of 42.3 percent in the food supply between 1980 and 1990 if only 1980 levels of per capita consumption are maintained. Per capita real income has been projected to increase by 45.0 percent between 1980 and 1990 or a compound annual rate of 3.78 percent. Using these population and income growth rates and hypothetical income elasticities of demand for food of 0.4 and 0.6 results in the following estimates of increased demand for food:

Income elasticity of 0.4:

$$d_1 = 3.59 + 0.4 (3.78)$$

$d_1 = 5.10$ percent per year or a 64.4 percent increase in food demand between 1980 and 1990 based on population and income growth;

Income elasticity of 0.6:

$$d_2 = 3.59 + 0.6 (3.78)$$

$d_2 = 5.86$ percent per year or a 76.7 percent increase in food demand between 1980 and 1990 with the higher income elasticity.

In summary, projected population increases alone would require a 42 percent increase in the food supply while the addition of projected real income increases might raise total demand for food from 64 to 76 percent over the nearby 10-year period 1980 to 1990.¹ SAR total agricultural production increased roughly 21 percent or 1.6 percent annually from 1961-65 to 1973-77, a 13-year period.² Per capita food production in SAR for 1973-77 was an average of 18 percent below the 1961-65 period. SAR was clearly behind both Lebanon and Turkey in rates of increase in food and agricultural production from the early 1960's to the mid-1970's but possibly ahead of Jordan. Thus, SAR was becoming increasingly dependent on imports if the 1961-65 consumption levels per capita were to be maintained. These rather crude projections of total food demand indicate the importance of both population and income growth. The sensitivity of demand to the value of the income elasticity is also apparent. What is true for the total food demand is also true for the projection of individual food items. The projection of each commodity is dependent on population and income projections and an income elasticity of demand.

Items to be discussed in this section include: (1) base consumption levels, (2) population and income projections, (3) income elasticities, (4) the question of food demand versus food needs, and (5) alternative projected levels of commodity consumption.

¹Real income refers to projected consumer disposable incomes adjusted for expected increases in the general price level.

²USDA, Indices of Agricultural Production in Africa and the Near East, Statistics Bulletin No. 610, ESCS, July 1978.

1.4.1 Base Consumption Levels

Base consumption levels were determined for 1975 on the basis of a three-year average (1974-76) for a number of commodities and groups of commodities, Table 1.23. Alternative base 1975 consumption per capita levels are those of (a) the assessment team and (b) FAO's latest projections. The team's and FAO's 1975 consumption per capita estimates are clearly not the same. SARG definitely needs to develop a consistent procedure for classifying and estimating the disappearance (assumed consumption) of foods in Syria. Alternative commodity balance sheets were available from the Central Bureau of Statistics (CBS), the Ministry of Agriculture and Agrarian Reform (MAAR), and the Ministry of Supply and Domestic Trade (MSDT). These balance sheets were presumably prepared for different purposes and with different results. Further, Consumer Surveys for 1961/62 and 1971/72 were available from CBS. These sources as well as judgment were used to develop the team's 1975 consumption estimates in Table 1.23.

SARG should consider establishing an official commodity balance table utilizing FAO's recommended procedure.¹ A consistent set of commodity balance tables would provide SARG with a vital tool useful for planning production and consumption projections as well as for assessing the nutritional state of its current food supply and production, imports, exports, and changes in stocks on the supply side and seed, feed, wastes, industrial use and extraction rates providing total "consumption" or disappearance on the demand side. Each of the various balance sheets mentioned above had strengths and weaknesses but none were sufficiently comprehensive or precise to be used for all of the 1975 base consumption levels in Table 1.23. The base consumption levels are not simply the gross disappearance values but include some adjustments for waste, processing, etc., e.g., meat data are supposedly in carcass weight. A consistent comprehensive set of balance tables would greatly facilitate the estimation of crop and animal product utilization in Syria. The utilization of feed, industrial, and animal products among by-products and waste factors are needed.

The base 1975 estimated consumption figures are established roughly around the 1974-76 period so as to get "normal" use during this period. Hopefully, this averaging process eliminates any significant change in stocks between crop years. The team's estimates for 1975 are similar to those of FAO for most commodities. FAO's latest expenditure elasticities were used for the projections.

1.4.2 Population and Income Projections

Population and income projections at five year intervals through the year 2000 were available from the Central Bureau of Statistics (CBS) and the State Planning Commission in Syria and from the Food and Agriculture

¹FAO, "Preparation of Supply/Utilization Balance's for Food and Agricultural Commodities (Commodity Balances)-Recommendations Regarding Methods, Concepts, Definitions, and Classifications," Fifth Session of the Near East Commission on Statistics, Cairo, U.A.R., April 1970, and a paper by M. Salameh, Food Balance Sheet in Syria, 1969/1971, Preparation and Evaluation, MSDT, 1973.

Table 1.23 Estimates of Total and Per Capita Consumption of Selected
Food Commodity Items for Syria 1975

Commodities (FAO Nos.)	Asses. Team Estimates		FAO Estimates	
	Total	Per Capita ^a	Total	Per Capita ^a
	(1000 mt)	(kg)	(1000 mt)	(kg)
1. CEREALS	1333.7	179.30	1234	170.0
2. Wheat ^b	1211.0	162.80	1124	154.8
3. Rice paddy ^c	94.0	12.63	94	12.9
4. Maize ^d	17.5	2.35	4	0.6
5. Barley ^e	7.2	0.97	8	1.1
6. Oats	--	--	--	--
7. Millet-Sorghum ^c	4.0	0.53	4	0.6
8. Other Cereals	--	--	--	--
9. ROOTS & TUBERS ^c	103.0	13.84	103	14.2
10. Potatoes	103.0	13.84	103	14.2
11. Sweet Potatoes	--	--	--	--
12. Cassava	--	--	--	--
13. Yams	--	--	--	--
14. Plantains	--	--	--	--
15. Other Roots	--	--	--	--
16. SUGAR PRODUCTS	195.6	26.30	223	30.8
17. Sugar Cent Raw ^f	180.0	24.20	214	29.5
18. Sugar Non-Cent	--	--	--	--
19. Other Sugars ^f	15.6	2.10	9	1.3

Commodities (FAO Nos.)	Assess. Team Estimates		FAO Estimates	
	Total	Per Capita ^a	Total	Per Capita ^a
	(1000 mt)	(kg)	(1000 mt)	(kg)
20. PULSES-NUTS-SEEDS	181.1	24.21	159	21.9
21. Pulses ^{b,g}	117.7	15.82	83	11.4
Chick peas ^b	34.7	4.66		
Lentils ^g	66.8	9.00		
Beans ^g	0.6	0.08		
Broad Beans ^g	7.7	1.03		
French Beans ^g	7.9	1.06		
22. Tree Nuts ^c	29.0	3.90	29	4.1
Walnut	16.0	2.15		
Chestnut	0.5	0.07		
Almonds	8.6	1.16		
Pistachio	3.8	0.51		
23. Oil Crops ^{g,e}				
24. VEGETABLES ^{g,h}	1478.8	198.80	1201	165.4
25. FRUITS ^g	1350.1	181.50	1266	174.4
26. Orange/tang.	108.7	14.60	104	14.3
27. Lemon/Lime	14.7	2.00	22	3.0
28. Other Citrus	--	--	--	--
29. Banana	27.9	3.70	22	3.0
30. Other Fruits ⁱ	1198.8	161.20	1118	154.0
Grapes ^{g,e}	209.1	28.10		
Apples ^g	74.9	10.67		
Apricots ^g	39.9	5.36		

Table 1.23 Continued.

Commodities (FAO Nos.)	Assess. Team Estimates		FAO Estimates	
	Total	Per Capita ^a	Total	Per Capita ^a
	(1000 mt)	(kg)	(1000 mt)	(kg)
Olives ^e	32.3	4.34		
Remainder ^g	842.6	113.28		
31. MEAT & OFFALS	108.4	14.57	118	16.3
32. Beef-Veal ^b	10.0	1.35	20	2.8
33. Mutton-Lamb ^b	66.2	8.90	60	8.3
34. Pigmeat ^b	--	--	--	--
35. Poultry Meat ^b	14.6	1.96	20	2.8
36. Other meat ^b	6.7	0.90	2	0.3
37. Offals ^g	10.9	1.46	15	2.1
38. EGGS ^g	32.7	4.40	29	4.0
39. FISH ^g	11.5	1.55	11	1.6
40. Finfish Fr-Fz	9.4	1.05	6	0.9
41. Finfish Proc.	2.1	0.24	5	0.7
42. Crust-Mollusc	--	--	--	--
43. Other aq. and pl.	--	--	--	--
44. WHOLE MILK ^{f,j}	198.6	26.70	174	24.0
45. Skim Milk	--	--	46	6.3
46. Cheese	31.2	4.20	38	5.2

Table 1.23 Continued.

Commodities (FAO Nos.)	Assess. Team Estimates		FAO Estimates	
	Total	Per Capita ^a	Total	Per Capita ^a
	(1000 mt)	(kg)	(1000 mt)	(kg)
47. FATS & OILS	79.5	10.7	79	10.9
48. Butter ^{d,k}	20.0	2.69	13	1.8
49. Vegetable oils ^{b,e,f}	55.8	7.50	64	8.8
50. Animal oil-fat	3.7	0.50	2	0.3
51. SPICES ^c	3.0	0.40	3	0.5
52. STIMULANTS	6.0	0.81	7	1.0
53. Cocoa Beans	1.0	0.13	1	0.1
54. Coffee ^b	1.3	0.17	2	0.3
55. Tea ^b	3.7	0.50	4	0.6
56. Other Stimulants	--	--	--	--
57. MISC. FOOD	--	--	--	--
58. ALCOHOLIC BEV.	8.0	1.07	12	1.6
59. Wine	1.0	0.13	1	--
60. Beer	4.0	0.54	7	1.0
61. Other	3.0	0.40	4	0.6
62. NON-ALCOHOLIC BEV.	--	--	--	--

Notes and Sources:

- a. Differences in per capita data due to FAO's 1975 population as 7,259,000 and SARG reported as 7,438,000.
- b. Salameh data adjusted to 1975.
- c. FAO estimates forthcoming in next projections publication.
- d. Average of Salameh and Farra estimates.
- e. CBS Balance Table 1971 - 1976.
- f. CBS Consumer Survey 1971 - 1977.
- g. Farra MSIT Balance Sheets.
- h. Vegetables include tomatoes, squash, onions, eggplants, cauliflower, cucumber, okra, garlic, green beans, green broad beans, and "other vegetables".
- i. Other fruits include: grapes, apricots, apples, peaches, pears, plums, cherries, olives, watermelons, raisins, figs and dates, and pomegranate.
- j. Milk and yogurt.
- k. Butter and animal ghee.
- l. Oil crops and peanuts, sesame, sunflower.

Sources available for computing the estimated average price per capita consumption level included balance sheets from CBS, the Farra 1975-77 balance sheet and the M. Salameh 1969-71 balance sheet from Consumer Household Survey from CBS; other sources were not consistent in terms of estimating consumption or disappearance each year. (The use of FAO balance sheet methods has been attempted in SAR but not perfected in terms of consistent commodity and/or products classification.)

Organization (FAO) of the United Nations. FAO will issue their latest set of agricultural commodity projections for Syria through the year 2000 during 1979.¹

1.4.2.1 Population Projections

The latest CBS population projections show a very high rate of growth over the 1975 to 2000 period, i.e., 3.38 percent compound annually, Table 1.24 and 1.25. Projected rates of growth earlier in the 25 year period are even higher; e.g., 3.59 percent between 1980 and 1990. Previous SARG and FAO projections were more modest, 3.16 percent growth annually for FAO and only 2.89 percent for SPC projection to 2000. Syria's population may well grow at the projected 3.59 percent between 1980 and 1990. Previous SARG and FAO projections were more modest, 3.16 percent growth annually for FAO and only 2.89 percent for SPC projection to 2000. Syria's population may well grow at the projected 3.382 percent annually between 1975 and 2000 (or 3.269 percent 1980-2000) yielding a population of 17,085,000 by the year 2000. Only the recent CBS population projections are used here. Alternative population projections may be utilized with the projected per capita consumption levels as desired. The recent CBS high growth projections have population increasing by 129 percent between 1975 and 2000 (Table 1.25).

1.4.2.2 Income Projections

Population projections are the most certain of the three elements used in projecting commodity demand, i.e., (1) population, (2) expenditures, and (3) income elasticities. Expenditure projections are probably the most difficult to project accurately. Projected per capita consumption expenditures used herein were from two sources: the State Planning Commission and FAO, Table 1.26. Per capita consumption expenditures rather than per capita gross domestic product figures are necessary because the FAO elasticities used herein are for expenditures. The per capita consumption expenditures of SPC exceed those of FAO by 50 percent for 1985 and 34 percent for the year 2000 projections.

1.4.3 Income Elasticities

Income elasticities, or expenditure elasticities where total per capita expenditures are used in lieu of income as is the case here, presumably reflect the changes in consumer buying habits as real incomes increase. Wheat, for example, may have an expenditure consumption elasticity of 0.2 while mutton's is 0.9. This implies that wheat consumption will increase only 0.2 percent if total expenditures increase one percent

¹FAO published consumption and production projections to 1970 and 1980 in 1962 and 1970, respectively. FAO's latest set of projections will extend to 2000.

Table 1.24

Population Data for Syria; Base 1975
and Projected 1985 and 2000

Period	Year	<u>Population Level</u>
		New CBS ^a
		(1000)
Base	1975	7,438
Projected	1980	8,979
	1985	10,781
	1990	12,774
	1995	14,922
	2000	17,085

^aSource: Central Bureau of Statistics

Table 1.25

Annual Compound Rates of Change and Periodic
Changes, Percentages, 1975-2000, from SAR
Population Projections

Base Year	Annual rates of change with periodic change in parentheses			
	1980	1985	Ending Year 1990	2000
	(Percentage)			
1975	3.834 (20.7)	3.778 (44.9)	3.669 (71.7)	3.382 (129.7)
1980		3.731 (20.1)	3.590 (42.3)	3.269 (90.3)
1985			3.453 (18.5)	3.118 (58.5)
1990				2.946 (33.7)

Source: Based on CBS population projections current
as of March 1979.

Table 1.26

Alternative Per Capita Consumption Expenditure Levels for
Syria: base 1975 and projected 2000

Period	Year	Per Capita Consumption Expenditure Levels	
		A. FAO ^a derived	B. SPC ^b derived
		(S.P.	Per Capita)
Base	1975	1677 (430)	1980 (508)
Projected	1985	2160 (554) ^c	3219 (825)
	2000	3584 (919)	4810 (1233)

^aFAO total consumption expenditures for Syria divided by new CBS I population projections, Table 1.24.

^bState Planning Commission projected total consumption divided by new CBS I population projections, Table 24.

^cU.S. dollars in parentheses.

while mutton consumption will increase by 0.9 percent. People prefer mutton to wheat or bread as incomes increase. As incomes rise above the subsistence level, populations generally consume fewer cereals and starchy items and more meat, milk, dairy products, and eggs.

The expenditure elasticities used here are the most recent used by FAO for Syria. They have been derived through FAO's experience with food demand-expenditure relationships for countries throughout the world.¹ FAO's elasticities are based at 1975 and are the latest available.

Both expenditure and consumption income elasticities have been calculated for selected SAR food products by CBS.² These estimates were derived from differences in expenditures and consumption as well as total expenditures between 1961 and 1971 based on household consumption surveys conducted by CBS. This type of work should be encouraged as it would be useful for future projection studies. A State Planning Commission study published in April 1970 projected demand for food items to 1985 and compared these with similar projections by the Ministry of Supply and Domestic Trade and Ministry of Agriculture and Agrarian Reform. Unfortunately, the team discovered this report only a week prior to departure. Other such studies may be available but were not brought to the team's attention. It appears that the expenditure elasticities from the earlier CBS report were not from cross sectional household survey data but rather from the differences in total expenditures between 1961 and 1971. If so, those conducting the surveys should be encouraged to collect data by family size, expenditure level, education, place of residence, and other relevant factors so that the relationship between expenditure level and consumption level can be estimated, yielding expenditure elasticities specifically for Syria.³

The necessity for reliable income or expenditure elasticities for planning is readily apparent. Over time the mix of food items consumed in Syria has changed due to changes in buying power and tastes, Table 1.27. The best method of anticipating future changes in demand would be to use income or expenditure elasticities derived directly from SAR consumer data. FAO elasticities used here (see Appendix 1.B) were presumably interpolated from consumer behavior in similar countries rather than derived from SAR data.

1.4.4 Food Demand vs. Food Needs

The projections for various food items assume that supply is perfectly elastic or that prices are constant relative to the 1975 base. The resulting quantities are those which consumers would be expected to buy with higher real incomes and full availability of the commodity at a constant price. However, if most food items are produced and supplied at the direction of the government, then consumers are not presented many choices outside of

¹See FAO, Income Elasticities of Demand for Agricultural Products, CCP 72/WP.1, May 1972, Rome, as well as Volumes I and II of FAO's Agricultural Commodity Projections Reports.

²CBS, Expenditure and Consumption Elasticities for Cities, Rural Areas and Total, December 1978.

³A useful reference is L. Philips, Applied Consumption Analysis, North Holland Publishing Co., Amsterdam, 1974. This book also contains many useful references on the topic of consumption analysis.

Table 1.27

Consumption and expenditures, average Per Capita, by Selected Food Items, 1961/62
and 1971/72

Food Category	1961/2		1971/2		Implied Prices ^{a/}	
	avg. exp. per capita	avg. cons. per capita	avg. exp. per capita	avg. cons. per capita	1961/2	1971/2
	(LS)	(kg)	(LS)	(kg)	(piasters/kilo)	
Bread	20.09	61.7	23.16	63.7	32.56	36.35
Flour	6.20	38.5	28.70	71.1	16.10	40.36
Burgoal	12.40	26.5	9.05	16.5	46.79	54.84
Rice	9.41	14.3	10.93	13.5	65.80	80.96
Meats	34.68	9.20	49.58	8.50	376.95	583.29
Poultry	2.00	0.81	4.90	1.8	246.91	272.22
Eggs (No.)	3.95	40.43	6.82	41.40	9.76	16.47
Olive oil	11.52	4.56	17.28	4.10	252.63	421.46
Sugar	14.43	16.44	21.35	24.20	87.77	88.22
Fresh milk	5.12	10.33	7.33	11.40	49.56	64.29
Tomato	7.21	26.90	10.43	36.40	26.80	28.65
Potato	5.20	14.66	7.64	16.80	35.47	45.47
Citrus	3.95	9.23	7.27	11.70	42.79	62.14

^{a/} Expenditures divided by consumption.

Source: CBS, Analysis and Data for Consumer Survey 1971-72, 1978, pp. 26-27.

the government plan. That is, if SARG chooses to restrict the entry of some commodities or certain varieties of commodities, then consumer choices are limited by this policy. The point is that incorporating the behavioral elasticities in the projection process as done here assumes the projected commodities are readily available. Such may not be the case, for example, if state policy restricts one commodity at the expense of another. Thus, "planning" for certain levels of consumption should be distinguished from attempting to project what the population would be expected to consume given readily available foodstuffs and higher real incomes. The projections in the following section are of the latter type, i.e., what would be expected to be consumed if available based on usual consumption trends as real incomes increase.

1.4.5 Commodity Demand Projections

1.4.5.1 Food and Beverages

Projection alternatives I, II, and III differ only by the assumed expenditure per capita levels while the projected rate of population growth used for all three is the same, Table 1.28.

Alternative I uses SARG projected consumption expenditures but on a per capita basis from the most recent CBS population projections. Alternative I provides the highest per capita expenditures levels. Alternative II employs FAO's total private consumption expenditures divided by the recent CBS projected population data. Alternative II expenditures are modest and would give rather conservative projected values as regards the income effect.

Alternative III is projecting by simply multiplying the 1975 base consumption levels by the high level population projections with no income effect, i.e., income is assumed to remain constant at the 1975 level. The differences between Alternative III and Alternatives I and II reveal the effects of assumed alternative income levels.

The elasticities and the respective functional forms assumed for each food's per capita consumption function are presented in Appendix 1.B.

Projections are from 1975 to (a) 1985 and (b) 2000 because 1975 was the base year for the elasticities.

The projected kilograms per capita and total metric tons figures are in Table 1.29. Compound annual growth rates and interval percentage changes from 1975 to 1985 and 2000 are shown in Table 1.30. A form of 1980 to 1985 percentage change was derived by using the 1975-1985 annual growth rate, Table 1.30.¹ The projected increases for total consumer demand by food groups are all over 20 percent between 1980 and 1985. Fruits, sugar products, meats, eggs, milk, and fish are the leading gainers in terms of projected consumer demand. Again, these differing rates of growth among commodities are based wholly on the expenditure elasticities and trend adjustments shown in Appendix 1.B.

Consumer demand more than doubles for all items between 1975 and 2000 for the Alternative II projections. Recall that these price projections

¹Projections are based on 1975 but a type of projection from 1980 to 1985 can be derived using the annual compound rates of growth in Table 1.30.

Table 1.28

Population and Expenditure Assumptions
with High Population Growth for Alternative

Demand Projections to 1985 and 2000

Alternatives ^a	Base 1975	Projected	
		1985	2000
<u>Alternative I:</u>			
a. Expenditure per capita:			
SARG LS ^b	1980	3219	4810
\$	508	825	1233
b. Population million	7,438	10,781	17,085
SARG			
<u>Alternative II:</u>			
a. Expenditure per capita			
FAO LS	1677	2160	3584
\$	430	554	919
b. Population million	7,438	10,781	17,085
SARG			
<u>Alternative III:</u>			
a. Expenditure per capita			
SARG LS	1979	no change from 1975	
\$	507		
b. Population million	7,438	10,781	17,085
SARG			

^aPopulation data are the same for all alternatives. SARG expenditure projections are used in Alternative I. FAO expenditure projections are used with SARG population in Alternative II, yielding lower per capita expenditures than Alternative I or the expenditures used in FAO's table.

^bSyrian pounds or lira divided by 3.9 to get dollars U.S.

Table 1.29 Projections of Consumption to 1985 and 2000 With Alternative Income Assumption, Per Capita, and Totals, Base 1975

Commodity and Projection ^a		Base Year 1975		Projected			
				1985		2000	
		(kg)	(1000 mt)	(kg)	(1000 mt)	(kg)	(1000 mt)
Wheat	I	162.80	1211.0	158.8	1,712	135.5	2,316
	II	---	---	165.9	1,788	148.6	2,539
	III	---	---	162.8	1,755	162.8	2,781
Rice	I	12.63	94.0	15.08	163	17.11	292
	II	---	---	13.91	150	16.46	281
	III	---	---	12.63	136	12.63	216
Maize	I	2.35	17.5	2.47	27	2.56	44
	II	---	---	2.41	26	2.53	43
	III	---	---	2.35	25	2.35	40
Barley	I	0.97	7.2	0.82	9	0.75	13
	II	---	---	0.82	9	0.75	13
	III	---	---	0.97	10	0.97	17
Millet/ Sorghum	I	0.53	4.0	0.53	6	0.53	9
	II	0.53	4.0	0.53	6	0.53	9
	III	0.53	4.0	0.53	6	0.53	9
CEREALS	I	179.30	1333.7	177.81	1,917	156.45	2,674
	II	---	---	183.56	1,979	168.70	2,882
	III	---	---	179.30	1,932	179.30	3,063
POTATOES	I	13.84	103.0	15.86	171	17.52	299
	II	---	---	14.89	161	16.99	290
	III	---	---	13.84	149	13.84	236
Sugar - cent raw	I	24.20	180.0	29.35	316	34.06	581
	II	---	---	27.25	294	32.58	557
	III	---	---	24.20	261	24.20	513
Other Sugar	I	2.10	15.6	2.81	30	3.41	58
	II	---	---	2.47	27	3.21	55
	III	---	---	2.10	23	2.10	36
SUGAR PRODUCTS	I	26.3	195.6	32.16	346	37.47	639
	II	---	---	29.72	321	35.79	612
	III	---	---	26.30	284	26.30	449

Table 1.29 Continued

Commodity and Projection ^a		Base Year 1975		Projected			
				1985		2000	
		(kg)	(1000 mt)	(kg)	(1000 mt)	(kg)	(1000 mt)
Pulses	I	15.82	117.7	16.95	183	16.61	284
	II	---	---	15.62	168	15.86	271
	III	---	---	15.82	170	15.82	270
Tree Nuts	I	3.90	29.0	5.04	54	5.99	102
	II	---	---	4.49	48	5.67	97
	III	---	---	3.90	42	3.90	67
Oil Crops	I	4.49	33.4	5.58	60	6.49	111
	II	---	---	5.05	55	6.19	106
	III	---	---	4.49	48	4.49	77
PULSES	I	24.21	181.1	27.57	297	29.09	497
NUTS	II	---	---	25.16	271	27.74	474
SEEDS	III	---	---	24.21	260	24.21	414
VEGETABLES ^b	I	198.8	1478.8	240.9	2,597	266.7	4,557
	II	---	---	222.3	2,397	259.4	4,432
	III	---	---	198.8	2,143	198.8	3,396
Oranges/tang.	I	14.6	108.7	24.86	268	24.60	420
	II	---	---	21.54	232	22.72	388
	III	---	---	14.60	157	14.60	249
Lemon/Lime	I	2.0	14.7	2.23	24	2.26	38
	II	---	---	2.07	22	2.19	37
	III	---	---	2.00	22	2.00	34
Bananas	I	3.7	27.9	4.42	48	5.01	86
	II	---	---	4.07	44	4.82	82
	III	---	---	3.70	40	3.70	63
Other Fruits	I	161.2	1198.8	187.98	2,027	203.94	3,484
	II	---	---	176.30	1,901	199.40	3,407
	III	---	---	161.20	1,738	161.20	2,754
FRUITS	I	181.50	1350.1	219.49	2,366	235.81	4,029
	II	---	---	203.97	2,199	229.13	3,914
	III	---	---	181.50	1,957	181.50	3,100

Table 1.29 Continued

Commodity and Projection ^a		Base Year		Projected			
		1975		1985		2000	
		(kg)	(1000 mt)	(kg)	(1000 mt)	(kg)	(1000 mt)
Beef/Veal	I	1.35	10.02	2.42	26	3.91	67
	II	---	---	1.83	20	3.36	57
	III	---	---	1.35	16	1.35	23
Mutton/Lamb	I	8.90	66.21	12.80	138	15.00	256
	II	---	---	10.92	118	13.80	236
	III	---	---	8.90	96	8.90	152
Poultry Meat	I	1.96	14.60	4.48	48	7.15	122
	II	---	---	3.13	34	5.90	101
	III	---	---	1.96	21	1.96	33
Other Meats	I	0.90	6.70	1.20	13	1.53	26
	II	---	---	1.05	11	1.42	24
	III	---	---	0.90	10	0.90	15
Offals	I	1.46	10.90	1.95	21	2.48	42
	II	---	---	1.70	18	2.30	39
	III	---	---	1.46	16	1.46	25
MEATS	I	14.57	108.43	22.85	246	30.07	513
	II	---	---	18.64	201	26.78	457
	III	---	---	14.57	159	14.57	248
EGGS	I	4.40	32.70	7.87	85	10.80	185
	II	---	---	5.96	64	9.26	158
	III	---	---	4.40	47	4.40	75
Finfish F _r -F ₂	I	1.26	9.40	1.95	21	2.81	48
	II	---	---	1.59	17	2.52	43
	III	---	---	1.26	14	1.26	22
Finfish Proc.	I	0.28	2.10	0.48	5	0.74	13
	II	---	---	0.37	4	0.65	11
	III	---	---	0.28	3	0.28	5
FISH	I	1.55	11.50	2.43	26	3.55	61
	II	---	---	1.96	21	3.15	54
	III	---	---	1.55	17	1.55	27

Table 1.29 Continued

Commodity and Projection ^a		Base Year 1975		Projected			
				1985		2000	
		(kg)	(1000 mt)	(kg)	(1000 mt)	(kg)	(1000 mt)
WHOLE MILK	I	26.70	198.60	39.70	428	50.43	862
	II	---	---	33.46	361	46.98	803
	III	---	---	26.70	288	26.70	456
CHEESE	I	4.20	31.20	6.19	67	8.54	146
	II	---	---	5.14	55	7.71	132
	III	---	---	4.20	45	4.20	72
Butter	I	2.69	20.00	3.43	37	4.19	72
	II	---	---	3.05	33	3.93	67
	III	---	---	2.69	29	2.69	46
Vegetable Oils	I	7.50	55.80	8.75	94	10.92	187
	II	---	---	8.20	88	10.45	179
	III	---	---	7.50	81	7.50	128
Animal oil-fat	I	0.50	3.70	0.61	7	0.71	12
	II	---	---	0.55	6	0.68	12
	III	---	---	0.50	5	0.50	9
FATS & OILS	I	10.69	79.50	12.79	138	15.82	270
	II	---	---	11.80	127	15.10	258
	III	---	---	10.69	115	10.69	183
SPICES	I	0.40	3.00	0.52	6	0.61	10
	II	---	---	0.46	5	0.58	10
	III	---	---	0.40	4	0.40	7
Cocoa Beans	I	0.13	1.00	0.19	2	0.24	4
	II	---	---	0.16	2	0.23	4
	III	---	---	0.13	1	0.13	2
Coffee	I	0.17	1.30	0.21	2	0.25	4
	II	0.17	1.30	0.19	2	0.23	4
	III	---	---	0.17	2	0.17	3

Table 1.29 Continued

Commodity and Projection ^a		Base Year 1975		Projected			
				1985		2000	
		(kg)	(1000 mt)	(kg)	(1000 mt)	(kg)	(1000 mt)
Tea	I	0.50	3.70	0.58	6	0.70	12
	II	0.50	3.70	0.53	6	0.66	11
	III	---	---	0.50	5	0.50	9
STIMULANTS	I	0.81	6.00	0.98	11	1.19	20
	II	---	---	0.88	10	1.12	19
	III	---	---	0.81	8	0.81	14
Wine	I	0.13	1.00	0.21	2	0.27	5
	II	---	---	0.17	2	0.23	4
	III	---	---	0.13	1	0.13	2
Beer	I	0.54	4.00	0.80	9	1.02	17
	II	0.54	4.00	0.68	7	0.95	16
	III	---	---	0.54	6	0.54	9
Other Alcohol Beverage	I	0.40	3.00	0.59	6	0.76	13
	II	---	---	0.50	5	0.70	12
	III	---	---	0.40	4	0.40	7
ALCOHOLIC BEVERAGE	I	1.07	8.00	1.60	17	2.05	35
	II	---	---	1.35	14	1.87	32
	III	---	---	1.02	11	1.07	18

Notes:

^aAlternative projections are: I. SARG income and population projections and FAO income elasticity and trends; II. FAO income and SARG population and FAO income elasticity and trends; and III. SARG population multiplied by base year levels to show effects of population increase only.

Rounding errors occur for those items with small consumption levels; e.g., spices, due to rounding total consumption to 1000 metric tons.

^bVegetable consumption allows for about 10 percent waste.

Table 1.30

Annual rates of increase and interval changes in percentages, by
commodity groups, Alternative II Projections, 1978 to 1985 and 2000^a

Commodity Group	1975-1985		1980-85	1975-2000	
	Annual Rate	Interval Change	Interval Change	Annual Rate	Interval Change
	(Percent)				
Cereals	4.02	48.4	21.8	3.13	116.1
Potatoes	4.57	56.3	25.0	4.22	181.5
Sugar Products	5.08	64.1	28.1	4.90	230.8
Pulses/nuts/oilseeds	4.11	49.6	22.3	3.92	161.7
Vegetables	4.90	62.1	27.0	4.49	199.7
Fruits	4.99	62.8	27.6	4.35	189.9
Meats	6.36	85.2	36.1	5.92	321.1
Poultry	8.82	132.8	52.6	8.04	591.7
Eggs	6.94	95.7	39.9	6.50	383.2
Fish	6.20	82.6	35.1	6.38	369.5
Whole Milk	6.16	81.8	34.8	5.74	303.3
Cheese	5.83	76.3	32.7	5.94	323.1
Fats & Oils	4.79	59.7	26.4	4.82	224.5
Spices	5.24	66.7	29.1	4.93	233.3
Stimulants	5.24	66.7	29.1	4.72	216.6
Alcohol Beverage	5.75	75.0	32.2	5.70	300.0

^aBased on Alternative II projections, Table 1.28.

are based on rather modest income growth rates. Total consumption for the high income level I projections is clearly higher than for the more moderate level II projections, Table 1.29. However, the difference is not as much as might be expected because of the rapid decline in wheat consumption at the higher income levels, Table 1.29.

Thus, if SARG is to satisfy apparent consumer demands in 1985 it will have to see that two-thirds or more of the 1975 total consumption of most food items are available by 1985. Of course, these are foods which require more intensive production programs and inputs. The task increases considerably by 2000 when two to almost three times as much food tonnage would be consumed, if available, with moderate to high income growth. Note that population increase alone accounted for 85 to 90 percent of the increased demand by 1985 and 80 percent by 2000.

These high population consumption projections will take on greater perspective when compared with recent and expected production trends. Of course, the 640,000 irrigated hectares from the Eurphrates dam will add considerable supply in support of the rapidly growing Syrian population and attendant economic demand for more and better foods.

Population alone will be the major demand shifter. It seems inevitable that population will at least double between 1975 and 2000 requiring twice the total food consumed in 1975. Compounding the effect of increased population will be increased buying power demanding more and different types of foods. Demand driven by growth in both population and income increases for foods and food groups by two- to four-fold or more by 2000, Tables 1.29 and 1.31.

The demand projections must be converted back to hectarages and yields to determine the resources needed by 1985 and 2000 to meet such needs. Again, however, note we are discussing projected consumer demand with assumed adequate supplies at constant prices. If supplies are short of projected demand, prices would rise to ration what is available. Further, government plans may limit the availability of some items and promote others so that consumption must adjust accordingly.

1.4.5.2 Industrial Crops

Cotton, tobacco, sugar, and vegetable oils are classified as industrial crops and were discussed in Section 1.2 in terms of recent trends. Projected outlook for these crops depends on both world and Syrian situations. SARG policies will affect production, exports, imports, and consumption of these items.

It is important to realize that Syria is a very minor exporter, importer and/or user of each of these crops due simply to population size; roughly nine million people in 1980. As such, Syria will not significantly influence world markets with its supply or purchase activities of these commodities. Syria will import and export at world prices while having little or no influence on world prices.

1.4.5.2.1 Cotton

Cotton is clearly the major export crop for Syria but is a minor share of world cotton exports. Syria was the seventh largest exporter of cotton during the 1975-1977 period but accounted for only 3 percent of total world exports. World exports change by more annually than the

Table 1.31 Total Consumption Levels for Major Food Groups, Base Year and
Projected 1985 and 2000, Alternatives I, II, III

Food Group		Base 1975		1985		2000	
		1000 MT	Percent of Base	1000 MT	Percent of Base	1000 MT	Percent of Base
Cereals	I	1333.7	100.0	1917	143.7	2674	200.5
	II	---	---	1979	148.4	2882	216.1
	III	---	---	1932	144.9	3063	229.7
Potatoes	I	103.0	100.0	171	166.0	299	290.3
	II	---	---	161	156.3	290	281.5
	III	---	---	149	144.7	236	229.1
Sugar Products	I	195.6	100.0	346	176.9	639	326.7
	II	---	---	321	164.1	612	312.9
	III	---	---	284	145.2	449	229.5
Pulses	I	181.1	100.0	297	164.0	497	274.4
Nuts	II	---	---	271	149.6	474	261.7
Oilseeds	III	---	---	260	143.6	414	228.6
Vegetables	I	1478.8	100.0	2597	175.6	4557	308.2
	II	---	---	2397	162.1	4432	299.7
	III	---	---	2143	144.9	3396	229.6
Fruits	I	1350.1	100.0	2366	175.2	4029	298.4
	II	---	---	2199	162.8	3914	289.9
	III	---	---	1957	144.9	3100	229.6
Meats	I	108.4	100.0	246	226.9	513	473.2
	II	---	---	201	185.4	457	421.6
	III	---	---	159	146.7	248	228.8
Eggs	I	32.7	100.0	85	259.9	185	565.7
	II	---	---	64	195.7	158	483.2
	III	---	---	47	143.7	75	229.3
Fish	I	11.5	100.0	26	226.1	61	530.4
	II	---	---	21	182.6	54	496.6
	III	---	---	17	147.8	27	234.7
Whole Milk	I	198.6	100.0	428	215.5	862	434.0
	II	---	---	361	181.8	803	404.3
	III	---	---	288	145.0	456	229.6

Food Group		Base 1975		1985		2000	
		1000 MT	Percent of Base	1000 MT	Percent of Base	1000 MT	Percent of Base
Cheese	I	31.2	100.0	67	214.7	146	467.9
	II	---	---	55	176.3	132	423.1
	III	---	---	45	144.2	72	230.7
Fats and Oils	I	79.5	100.0	138	173.6	270	339.6
	II	---	---	127	159.7	258	324.5
	III	---	---	115	144.6	183	230.2
Spices	I	3.0	100.0	6	200.0	10	333.3
	II	---	---	5	166.6	10	333.3
	III	---	---	4	133.3	7	233.3
Stimulants	I	6.0	100.0	11	183.3	20	333.3
	II	---	---	10	166.6	19	316.6
	III	---	---	8	133.3	14	233.3
Alcoholic Beverage	I	8.0	100.0	17	212.5	35	437.5
	II	---	---	14	175.0	32	400.0
	III	---	---	11	137.5	18	225.0
Total excluding stimulants & alcohol	I	5108.6 (686.8 kg/capita)	100.0	8718 (808.6 kg/capita)	170.6	14,797 (866.1 kg/capita)	289.6
	II	---	---	8,186 (759.3 kg/capita)	160.2	14,527 (850.3 kg/capita)	284.4
	III	---	---	7,404 (both 686.8 kg/capita)	144.9	11,734	229.7

Source: Table 1.29.

whole of Syria's exports.¹ Even though all cotton is not homogeneous and Syrian cotton enjoys an excellent reputation in world markets, Syria should not have any influence on world prices due to its small share of the market.

FAO sees world cotton trade expanding modestly with relative increases in demand greatest in the Near East. Since SARG policy appears to be to stabilize or reduce cotton production in favor of food crops and increase domestic mill consumption of cotton, SAR cotton exports will probably not increase during the foreseeable future. Over 40 percent of Syria's exports were to China (P.R.) and the USSR during the 1975-1977. This concentration of sales to state controlled markets could be good or bad depending on the policies of those countries. Fortunately, the other 60 percent is well spread over a number of markets.

FAO projects world cotton demand to increase by 27 percent between 1972-74 and 1985; 41 percent in developing countries and 16 percent in developed countries.²

1.4.5.2.2 Sugar

Imports were 84 percent of Syria's sugar consumption during 1975-1977.³ Syria's imports were less than one percent of world sugar imports (0.73 percent). Syria's sugar importing activities are not likely to affect world supply and demand conditions. Future import needs of Syria depend on SARG policy regarding domestic sugar beet production and consumer sugar rationing and subsidies. FAO projects world sugar production increasing more rapidly than world demand to 1985. Thus, supplies for Syria's imports should be adequate. Near East import requirements were projected to increase by 58 percent between 1976 and 1985, still supplies should be sufficient for Syrian imports at reasonable prices.

1.4.5.2.3 Tobacco

Syrian tobacco imports and exports are minuscule in terms of world trade. The SARG tobacco monopoly is tightly run and its policies have a great influence on domestic production and trade. World demand for tobacco is still growing but at a reduced rate due to higher prices because of increased costs and taxation and intensified anti-smoking campaigns. Depending on the permanence of the barter arrangement with U.S. tobacco companies, the Syrian tobacco monopoly should find adequately increasing demand for its products in the rapidly growing domestic population.

Other industrial commodities such as cottonseed oil or groundnuts will face international markets dominated by world supply and demand forces which Syria is unable to influence. These other commodity situations, as well as cotton, sugar, and tobacco, must be examined in detail for the uniqueness of Syria's needs and Syria's ability to supply.

¹International Cotton Advisory Committee, Cotton-World Statistics, Vol. 32, No. 9, Part II, Washington, D.C., April 1979.

²FAO Commodity Projections, Cotton; Supply, Demand and Trade Projections, 1985, ESC:PROJ/79/18, February 1979.

³International Sugar Organization, Statistical Bulletin, Vol. 37, No. 10/11, Oct/Nov. 1978, London.

Recent work by FAO on supply/demand balance sheets by countries should be published later this year. Unpublished preliminary projections by FAO find SAR self-sufficiency ratios in 1975 and projected 2000 follows:

	<u>Self-Sufficiency Ratios</u>	
	<u>1975</u>	<u>2000</u>
Cereals	0.89	0.43
Wheat	0.88	0.66
Potatoes	0.93	1.00
Sugar	0.12	0.20
Vegetables	0.97	1.01
Fruits	0.98	0.98
Cotton	3.73	3.49
Milk	0.89	0.80
Eggs	0.90	1.00
Meats	0.88	0.97
Coarse Grains	1.00	0.30

For all agricultural commodities, excluding cotton, the combined FAO self-sufficiency ratio dropped from 89 percent in 1975 to projected 76 percent in 2000. The projections suggest less self-sufficiency in cereals and coarse grains, continuing self-sufficiency in potatoes, vegetables, and fruits, and increased self-sufficiency in meats. The coarse grain drawdown would be for feed use to boost meat (mutton, poultry, and beef) production. FAO's projections assumed a population growth rate of 3.16 percent annually versus the SARG 3.38 percent used here for Alternative I projections.

These preliminary FAO projections support our general assessment that Syria will probably become increasingly dependent in terms of total food supply due to the shift to meats and the press of exceptional population growth.

In summary, projected food demands for Syria are large, being driven by income and, particularly, by projected population growth. Summing the total projected demand for food groups in Table 1.29, under Assumption II, and excluding Spices, Stimulants, and Alcoholic Beverages, projected total demand was 60 percent greater in 1985 than in 1975 and, 185 percent greater for 2000. Most of the 2000 projected increase, 129 percent, was due to projected population increase with the remainder due to expected increases in real buying power.

1.5 Recommendations

SARG policy is clearly providing stable prices and markets for major crops for those producers who choose to deliver their crops. In the case of some major crops--wheat, barley, and lentils--participation has frequently been low. The general policy of higher farm prices and moderate consumer food prices may be resulting in increased subsidy costs and inflationary pressures as well as reduced foreign exchange earnings, all of which are contrary to stated SARG policy.

Economic planning to the degree attempted by SARG clearly requires large volume of data as well as careful analyses of these data. The team's impression was there may be considerable data available among the various ministries and general organizations but no central analytical staff to evaluate the data was apparent. The State Planning Commission seemed to be fully occupied with planning, thus having little or no time for compilation and analysis of data, programs, and other information. We recommend that a modest size staff of economic analysts be assembled in one location with the full-time mission of evaluating current and proposed programs in terms of production, prices, consumption, trade, carryover stocks, program costs (including subsidies) and benefits, program participation by producers and consumers, and income levels and distribution. While evaluation of programs would be a major responsibility, the staff group might also propose and evaluate programs given certain objectives. However, this staff should primarily be an objective analytical group rather than being advocates of any particular policy.

Specific tasks for the above staff should include: (1) estimating losses of sales due to smuggling associated with price differentials among Syria, Lebanon, Jordan, and Turkey, (2) determining the amount of bread wasted due the extremely low price (some feed livestock), and 3) determining costs of current agricultural production and marketing programs in terms of both direct subsidies and operating subsidies on a crop by crop basis.

Another major data project which would be very useful for planning purposes is a consistent set of commodity balance tables. These tables can be based on the UN's FAO balance table method which attempts to (1) determine annual supply and (2) partition supply among various uses, waste, and carryover stocks. Three sets of balance tables were found by the team; one each in MAAR, MSIT, and CBS. Each set was significantly different from the other two. A consistent set of balance tables will also be valuable for assessing average nutritional levels. This activity might be located within the MSIT because of their responsibility for projecting annual consumption needs and the resident expertise.

In addition to the abovementioned balance tables, specific information from household surveys would be useful for determining detailed consumption patterns and income or consumption elasticities. Specific income elasticities for SAR should provide (1) greater insight into changing consumption patterns and (2) better demand projections. Household consumption surveys were conducted in 1961/62 and 1971/72, providing useful data. However, the next survey should determine rates of consumption for families of different income levels so that expenditures and/or income elasticities can be developed. At present, demand projections for Syria incorporate FAO expenditure elasticities since no domestic elasticities were readily available for all of the desired commodities.

As indicated earlier, considerable data on agriculture were available among the various state agencies but a valuable contribution could be made by compiling these data in the Annual Agricultural Statistical Abstract. Such a publication would contain all available price, production, utilization, trade, etc. data on agriculture rather than only the production and land use data in the recent 1976 agricultural abstract. Much of the agricultural related data in the CBS annual Statistical Abstract should be included in the agricultural data in one publication and illuminate any gaps therein.

A major thesis of this assessment is that SARG may be too involved in both the production and marketing phases of agriculture, stifling efficiency and investment. Thus, we recommend the following operational items.

First, utilize price supports (rather than fixed prices) selectively to allocate production and support farmers' incomes. Price supports are beneficial proportionate to the farm size. Since most farmers have very little to sell, price supports would not appear to be particularly beneficial as income support. In any event price supports will allow prices to rise more for those products in greatest demand and/or shortest supply. Of course, price floors must not be set so high that surpluses occur frequently. This "flexibility above the price support level" approach will aid in both production and consumption allocation.

Second, commodity production should be relatively free to move within Syria's boundaries so as to determine the most efficient pattern of production.

Third, concern about exploitive middlemen may be well founded. The decision that the state should dominate the agricultural marketing sector is probably not. Better ways of promoting competitive and efficient marketing could include modest state purchase and storage activities to keep prices reasonable and provision of adequate market information on prices and supplies for both producers and consumers. Newspapers would be useful information outlets. Chapter II of this annex treats this matter in more detail.

The sugar program needs a thorough examination in terms of the costs of producing sugar domestically versus importing. Currently, imported sugar is cheaper than that produced in SAR. FAO projections to 1985 indicate plentiful world supplies and reasonable prices.

If SARG planners continue to pursue the marketing of vegetables and meat (in Damascus), the operational personnel need to be given greater authority to adjust prices in accordance with cost and demand factors.

In a sense, one could argue that government programs have created a degree of uncertainty which has prevented the capital investment necessary for increasing productivity. While price stability has been beneficial, the small units created through land reform cannot adopt much in the way of yield increasing technology. Poultry production units, which require some size in order to be efficient, have apparently been restrained by threat of nationalization. Modern poultry operations have been much slower to develop than in Lebanon, for example. SARG needs to determine how important size of production unit is for increasing production and then encourage such scale of enterprise. These would presumably be modest size units but not necessarily the extremely small ones currently dominating agriculture in SAR. The cooperatives are supposedly an answer to the scale or size problem; i.e., cooperative marketing assembles volumes for more efficient handling from a larger number of small production units. How well is this working? Since the state has only been able to get 31 percent of the wheat crop (average 1967-1976), it is forced to import the wheat to meet projected consumption needs. Imports of wheat and flour were greater than the total amount of wheat purchased by the state from SAR producers during the nine-year period 1967-1975. What

happens to the 69 percent of the total production not sold to the state? Perhaps it is sold locally for a higher price or valued higher for home use.

We recommend that the effects of fixed prices on the incomes of small farmers be carefully evaluated. It may be desirable to support incomes of small farmers with direct payments in addition to product prices.

It seemed apparent that the private sector, of which agriculture is a part, has been discriminated against relative to the public sector; e.g. industry. In the stages of economic development agriculture clearly plays a leading role and should not be treated as if of secondary importance.

1.6 References

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APPENDIX 1.A
COMMODITY TABLES

Appendix 1.A
Table 1.

Hectares Harvested and Associated Government-Supported
Prices, Selected Crops, 1967-78

	WHEAT (SOFT)		BARLEY-WHITE		LENTILS-WHITE	
	Hectares	Price ^a	Hectares	Price ^a	Hectares	Price ^a
1978		66		51		85
1977	1528000	62	1021000	45	178300	110
1976	1590259	50	1171922	41	146479	135
1975	1692267	50	1011393	41	97844	125
1974	1537220	44	696952	35	85411	60
1973	1475769	37	914475	28	92081	50
1972	1354000	32	593000	23	115100	44
1971	1252000	29	599000	18	129080	40
1970	1340531	29	1126117	13	139511	45
1969	1221109	29	626117	16	110445	37
1968	891000	29	631000	16	99312	-
1967	1200771	28	645587	20	77003	-

^aIn piasters/Kg.

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1969-78 and Ministry of Agriculture and Agrarian Reform, Annual Agricultural Statistical Abstract 1976.

Hectares Harvested and Associated Government-Supported

Prices, Selected Crops, 1967-77

	COTTON		SUGAR-BEETS (SUMMER)		PEANUTS (WHITE)	
	Hectares	Price ^a	Hectares	Price ^a	Hectares ^b	Price ^a
1977	186500	170	12200	15.0	10900	200
1976	181760	145	8510	14.0	13370	160
1975	208126	135	8088	14.0	12593	160
1974	205475	115	6507	11.5	12409	125
1973	200417	90	7697	8.0	12223	90
1972	238212	84	9578	6.5	12723	-
1971	250483	80	8630	6.5	10802	-
1970	249403	80	9026	6.0	9390	-
1969	299072	80	7225	-	9002	-
1968	279426	80	7532	-	8812	-
1967	239435	78	6584	-	8404	-

^aIn piasters/Kg.^bTotal hectares of peanuts harvested.

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1969-78, and Ministry of Agriculture and Agrarian Reform, Annual Statistical Abstract 1976.

Appendix 1.A

Table 3.

World Prices of Selected Agricultural Commodities,
Export Ports, 1973-77

Year	WHEAT Australia	BARLEY Australia	MAIZE USA	RAW SUGAR Caribbean	LENTILS Chile	CHICK PEAS Netherlands
\$/100 kg						
1977	10.5			17.9		46.4
1976	11.8	13.0	10.2	25.5		39.6
1975	15.2	13.4	11.7	45.2	53.6	41.9
1974	17.5	15.3	12.8	66.1	71.8	59.5
1973	18.9	12.0	12.3	21.2	54.5	33.3

Year	COTTON UK*	FLOUR Australia	RICE Australia	DRY BEANS UK*	ORANGES Israel	OLIVE OIL Spain
\$/100 kg						
1977			n.a.	41.2	n.a.	129.0
1976		20.6	27.3	50.5	22.6	132.6
1975		23.0	30.9	48.3	19.4	188.5
1974		29.8	35.5	73.7	25.2	191.0
1973		22.3	29.8	84.5	16.1	121.3

*Import price.

Source: Food and Agriculture Organization, F.A.O. Production Yearbook,
United Nations, Rome.

Table 4.

Local Potatoes; Retail Annual Average Prices, by Mohafazat, 1969-77

[illegible]

n.a. - not available

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1971-1978.

Appendix 1.A
Table 5.

Local Potatoes; Wholesale Annual Average Prices, by Mohafazat, 1963-77

[illegible]

n.a. - not available

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1964-1978.

Appendix 1.A

Table 6.

Imported Potatoes; Retail Annual Average Prices, by Mohafazat, 1966-77

[illegible]

n.a. - not available

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1967-78.

Appendix 1.A
Table 7.

Imported Potatoes; Wholesale Annual Average Prices, by Mohafazat, 1970-77

Mohafazat	1977	1976	1975	1974	1973	1972	1971	1970
	----- Piasters/KG -----							
Damascus	115	108	90	63	60	42	42	34
Aleppo	105	120	95	65	57	35	38	43
Homs	n.a.	n.a.	n.a.	51	47	43	43	n.a.
Hama	108	n.a.	75	55	45	45	46	n.a.
Tartous	108	110	77	n.a.	50	44	41	n.a.
Latakia	100	105	80	56	46	45	45	n.a.
Idleb	110	108	69	59	60	45	44	n.a.
Al Rakka	113	105	76	52	49	38	40	n.a.
Deir Ezor	103	102	n.a.	n.a.	50	35	37	n.a.
Al Hasakeh	109	94	65	55	55	45	45	n.a.
Sweida	105	98	72	50	46	44	40	n.a.
Dara	109	102	73	56	53	39	41	n.a.
Quintra	-	-	-	-	-	n.a.	n.a.	n.a.

n.a. - not available

Source: (Central Bureau of Statistics), Statistical Abstract, various issues
1970-1978.

Appendix 1.A

Table 8.

Tomatoes; Retail and Wholesale Annual Average
Prices, Damascus and Aleppo, 1963-77

Year	Damascus		Aleppo	
	Retail	Wholesale	Retail	Wholesale
----- Piasters/KG -----				
1977	215	200	167	135
1976	148	110	158	125
1975	130	103	150	125
1974	64	53	104	76
1973	108	81	98	78
1972	79	67	89	72
1971	80	57	85	69
1970	60 ^a	50 ^a	72 ^a	53 ^a
1969	63	n.a.	70	n.a.
1968	51	n.a.	51	n.a.
1967	54	n.a.	65	n.a.
1966	36	n.a.	48	n.a.
1965	55	n.a.	62	n.a.
1964	48	n.a.	65	n.a.
1963	42	n.a.	48	n.a.

^aListed as imported 1970 to date.

Source: (Central Bureau of Statistics), Statistical Abstract, 1969-78.

Appendix 1.A
Table 9.

Watermelon; Retail Annual Average Prices, by Mohafazat, 1963-77

Mohafazat	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963
	----- Piasters/KG -----														
Damascus	55	80	80	61	70	31	38	37	35	36	23	32	25	26	33
Aleppo	65	71	67	66	63	25	26	37	27	24	17	22	22	20	19
Homs	55	64	60	71	48	27	26	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Hama	76	50	35	61	41	21	20	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Tartous	69	74	48	57	48	28	23	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Latakia	52	57	57	53	49	27	24	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Idleb	59	55	43	65	52	15	16	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al Rakka	66	54	53	59	52	28	26	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Deir Ezor	45	38	34	57	52	25	18	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al Hasakeh	51	61	43	52	55	18	20	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Sweida	63	68	52	39	51	38	27	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Dara	56	55	48	47	55	30	26	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

n.a. - not available

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1963-1978.

Appendix 1.A
Table 10.

Watermelon; Wholesale Annual Average Prices, by Mohafazat, 1970-77

Mohafazat	1977	1976	1975	1974	1973	1972	1971	1970
	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -
				Piasters/KG				
Damascus	38	65	63	46	57	25	30	30
Aleppo	50	56	50	53	51	19	20	29
Homs	45	44	42	65	37	21	15	n.a.
Hama	60	43	42	43	31	15	15	n.a.
Tartous	54	51	32	47	38	21	17	n.a.
Latakia	42	52	45	44	39	21	18	n.a.
Idleb	45	38	33	43	37	12	11	n.a.
Al Rakka	46	35	45	38	35	19	18	n.a.
Deir Ezor	36	32	29	40	32	19	14	n.a.
Al Hasakeh	38	45	36	43	38	13	13	n.a.
Sweida	52	49	40	34	39	20	20	n.a.
Dara	46	39	38	39	34	25	20	n.a.

n.a. - not available

Source: (Central Bureau of Statistics), Statistical Abstract, various issues
1970-1978.

Appendix 1.A

Table 11.

Red Onions; Retail & Wholesale Annual Average Prices,
Damascus and Aleppo, 1963-77

Year	Damascus		Aleppo	
	Retail	Wholesale	Retail	Wholesale
- - - - -Piasters/KG - - - - -				
1977	91	85	114	95
1976	160	118	144	110
1975	57	45	59	43
1974	32	25	34	25
1973	46	36	44	34
1972	26	19	29	21
1971	19	14	22	16
1970	40	37	50	38
1969	37	32	42	34
1968	22	16	21	15
1967	33	27	33	22
1966	27	19	28	16
1965	30	25	31	21
1964	31	26	30	21
1963	17	9	17	9

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1963-77.

Appendix 1.A

Table 12.

Cucumbers; Retail Annual Average Prices, by Mohafazat, 1964-77

Mohafazat	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964
	----- Piasters/KG -----													
Damascus	141	200	135	102	86	55	98	75	73	65	69	59	59	73
Aleppo	167	186	142	133	96	50	100	127	128	48	47	48	79	41
Homs	134	129	98	98	90	66	63	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Hama	190	157	130	107	77	52	66	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Tartous	190	140	107	99	102	103	110	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Latakia	145	130	120	102	93	72	118	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Idleb	139	153	93	91	86	57	67	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al Rakka	160	139	104	102	95	54	86	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Deir Ezor	160	152	118	109	139	44	66	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al Hasakeh	168	157	137	123	88	61	73	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Sweida	150	152	128	88	88	77	74	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Dara	124	136	102	95	98	53	60	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

n.a. - not available

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1964-1978.

Appendix 1.A

Table 13.

Cucumbers; Wholesale Annual Average Prices, by Mohafazat, 1970-77

Mohafazat	1977	1976	1975	1974	1973	1972	1971	1970
	Piasters/KG							
Damascus	115	174	120	96	78	50	80	70
Aleppo	140	149	125	113	88	40	124	103
Homs	109	107	86	78	73	58	49	n.a.
Hama	160	130	100	84	65	50	51	n.a.
Tartous	140	112	96	86	83	84	74	n.a.
Latakia	117	98	105	83	77	60	100	n.a.
Idleb	114	135	85	77	64	46	48	n.a.
Al Rakka	132	122	97	90	79	42	45	n.a.
Deir Ezor	137	130	110	101	83	45	63	n.a.
Al Hasakeh	135	134	120	98	74	49	66	n.a.
Sweida	130	125	105	76	71	60	41	n.a.
Dara	110	105	85	75	71	51	45	n.a.

n.a. - not available

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1970-1978.

Appendix 1.A

Table 14.

Squash; Retail Annual Prices by Mohafazat, 1970-75^a

Mohafazat	1975	1974	1973	1972	1971	1970
	- - - - -Piasters/KG- - - - -					
Damascus	90	77	58	57	58	40
Aleppo	60	53	42	32	40	51
Homs	71	53	54	32	45	n.a.
Hama	54	46	54	25	32	n.a.
Tartous	84	50	50	42	44	n.a.
Latakia	75	54	63	34	38	n.a.
Idleb	55	57	46	27	33	n.a.
Al Rakka	64	57	42	40	29	n.a.
Deir Ezor	n.a.	n.a.	-	-	-	n.a.
Al Hasakeh	n.a.	n.a.	-	-	37	n.a.
Sweida	n.a.	45	-	-	-	n.a.
Dara	77	n.a.	48	39	41	n.a.
Quintra	-	-	-	-	-	n.a.

^aSeries discontinued in 1976.

n.a. - not available

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1971-1977.

Appendix 1.A

Table 15.

Squash; Wholesale Annual Average Prices, by Mohafazat, 1970-75^a

Mohafazat	1975	1974	1973	1972	1971	1970
	- - - - - Piasters/KG - - - - -					
Damascus	67	55	49	46	46	36
Aleppo	48	43	35	21	32	39
Homs	62	43	41	24	30	n.a.
Hama	44	39	36	17	22	n.a.
Tartous	63	37	45	31	29	n.a.
Latakia	61	44	48	25	38	n.a.
Idelb	44	50	37	20	25	n.a.
Al Rakka	43	45	31	30	17	n.a.
Deir Ezor	n.a.	n.a.	-	-	-	n.a.
Al Hasakeh	69	n.a.	-	-	29	n.a.
Sweida	n.a.	n.a.	-	-	-	n.a.
Dara	48	n.a.	39	26	31	n.a.
Quintra	-	-	-	-	-	-

^aSeries discontinued in 1976.

n.a. - not available

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1971-1977.

Appendix 1.A
Table 16.

Hilwani Grapes; Retail Annual Average Prices, by Mohafazat, 1963-77

Mohafazat	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963
	----- Piasters/KG -----														
Damascus	86	225	210	132	125	65	72	83	74	83	41	55	46	59	49
Aleppo	204	197	180	135	125	63	75	87	76	69	50	66	46	60	70
Homs	161	150	138	110	98	79	87	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Hama	162	145	104	97	85	63	64	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Tartous	150	153	116	97	86	77	51	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Latakia	164	162	156	105	85	71	61	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Idleb	165	157	140	95	70	64	48	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al Rakka	158	155	133	107	98	70	56	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Deir Ezor	176	161	175	124	101	45	55	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al Hasakeh	164	162	155	110	82	75	78	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Sweida	163	156	106	107	63	89	39	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Dara	157	155	113	105	68	36	35	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

n.a. - not available

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1963-1978.

Appendix 1.A

Table 17.

Hilwani Grapes; Wholesale Annual Average Prices, by Mohafazat, 1970-77

Mohafazat	1977	1976	1975	1974	1973	1972	1972	1971
	- - - - - Piasters/KG - - - - -							
Damascus	173	175	165	120	110	60	59	71
Aleppo	192	141	139	110	105	49	60	73
Homs	135	125	116	84	80	62	62	n.a.
Hama	117	98	92	75	71	46	38	n.a.
Tartous	113	108	95	87	71	59	42	n.a.
Latakia	117	106	126	91	70	57	54	n.a.
Idleb	121	110	109	81	61	60	43	n.a.
Al Rakka	118	113	109	90	60	56	37	n.a.
Deir Ezor	138	125	139	99	79	35	45	n.a.
Al Hasakeh	125	118	135	86	61	60	52	n.a.
Sweida	125	115	98	81	40	69	-	n.a.
Dara	115	104	94	88	37	25	28	n.a.

n.a. - not available

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1971-1978.

Appendix 1.A

Table 18.

Local Apples; Retail Annual Average Prices,
by Mohafazat, 1970-75^a

Mohafazat	1975	1974	1973	1972	1971	1970
	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -
	Piasters/KG					
Damascus	137	113	101	71	57	91
Aleppo	128	110	93	75	67	69
Homs	148	102	98	81	74	n.a.
Hama	150	85	99	48	70	n.a.
Tartous	95	94	94	61	50	n.a.
Latakia	85	92	99	45	47	n.a.
Idleb	100	85	95	50	62	n.a.
Al Rakka	110	127	99	82	81	n.a.
Deir Ezor	95	87	97	70	54	n.a.
Al Hasakeh	82	95	96	68	56	n.a.
Sweida	140	112	96	82	81	n.a.
Dara	106	117	91	92	53	n.a.
Quintra	-	-	-	-	-	n.a.

^aSeries discontinued in 1976.

n.a. - not available

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1971-1977.

Appendix 1.A
Table 19.

Local Apples; Wholesale Annual Average Prices, by Mohafazat, 1970-75^a

Mohafazat	1975	1974	1973	1972	1971	1970
	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -
	-Piasters/KG-					
Damascus	113	98	96	58	44	80
Aleppo	102	92	82	50	54	63
Homs	128	82	72	64	64	n.a.
Hama	123	73	64	33	61	n.a.
Tartous	75	77	67	47	39	n.a.
Latakia	69	71	69	40	38	n.a.
Idleb	75	75	62	38	50	n.a.
Al Rakka	89	100	79	64	43	n.a.
Deir Ezor	80	75	65	55	42	n.a.
Al Hasakeh	72	82	68	45	48	n.a.
Sweida	120	91	76	60	49	n.a.
Dara	89	84	80	65	43	n.a.
Quintra	-	-	-	-	-	n.a.

^aSeries discontinued in 1976.

n.a. - not available

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1971-1977.

Appendix 1.A
Table 20.

Apricots; Retail and Wholesale Annual Average Prices, Damascus, Aleppo, and All
Other Mohafazats, 1966-77

Year	Damascus		Aleppo		Other Mohafazats ^a	
	Retail	Wholesale	Retail	Wholesale	Retail	Wholesale
----- Piasters/KG -----						
1977	278	244	306	231	228	162
1976	175	145	210	147	173	132
1975	167	130	183	140	153	126
1974	186	159	190	179	158	134
1973	167	143	171	150	123	103
1972	115	93	123	110	99	81
1971	79	65	110	89	104	75
1970	88	86	118	97	n.a.	n.a.
1969	103	n.a.	129	n.a.	n.a.	n.a.
1968	67	n.a.	52	n.a.	n.a.	n.a.
1967	93	n.a.	79	n.a.	n.a.	n.a.
1966	106	n.a.	96	n.a.	n.a.	n.a.

^aSimple average of all other Mohafazats.

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1969-78.

Table 21.

Imported Oranges; Retail Annual Average Prices,
by Mohafazat, 1970-75^a

Mohafazat	1975	1974	1973	1972	1971	1970
	- - - - - Piasters/KG - - - - -					
Damascus	124	117	95	80	70	84
Aleppo	143	121	99	90	79	78
Homs	131	109	97	79	64	n.a.
Hama	113	96	98	71	63	n.a.
Tartous	140	112	91	84	82	n.a.
Latakia	135	118	85	93	74	n.a.
Idelb	116	104	86	69	71	n.a.
Al Rakka	125	110	92	71	72	n.a.
Deir Ezor	142	104	92	63	75	n.a.
Al Hasakeh	126	120	88	83	78	n.a.
Sweida	127	98	78	85	70	n.a.
Dara	120	110	80	114	72	n.a.

^aSeries discontinued in 1976.

n.a. - not available

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1970-1977.

Table 22.

Imported Oranges; Wholesale Annual Average Prices, by
Mohafazat, 1970-75^a

Mohafazat	1975	1974	1973	1972	1971	1970
	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -
	Piasters/KG-					
Damascus	98	97	70	70	57	63
Aleppo	115	98	80	78	64	63
Homs	109	91	63	63	49	n.a.
Hama	92	86	59	57	49	n.a.
Tartous	118	91	59	70	67	n.a.
Latakia	114	92	64	76	66	n.a.
Idleb	103	88	69	58	59	n.a.
Al Rakka	102	85	58	59	55	n.a.
Deir Ezor	118	82	62	52	63	n.a.
Al Hasakeh	95	98	73	66	63	n.a.
Sweida	106	85	62	64	56	n.a.
Dara	102	97	62	98	55	n.a.

^aSeries of discontinued in 1976.

n.a. - not available

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1970-1977.

Appendix 1.A

Table 23.

Bananas; Retail Annual Average Prices, by Mohafazat, 1963-77

Mohafazat	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Piasters/KG														
Damascus	279	310	237	215	205	166	168	141	127	113	112	87	105	105	92
Aleppo	281	268	260	230	214	171	149	145	130	122	119	123	127	117	106
Homs	287	260	259	232	216	203	171	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Hama	281	270	254	231	215	194	170	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Tartous	277	253	240	220	190	157	159	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Latakia	262	250	235	215	181	175	157	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Idleb	283	266	260	230	194	164	163	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al Rakka	300	285	280	232	219	179	173	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Deir Ezor	317	298	288	239	228	181	165	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al Hasakeh	327	317	285	235	214	191	186	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Sweida	297	282	258	234	183	181	139	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Dara	293	273	263	230	198	195	160	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

n.a. - not available

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1963-1978.

Appendix 1.A

Table 24.

Bananas; Wholesale Annual Average Prices, by Mohafazat, 1970-77

Mohafazat	1977	1976	1975	1974	1973	1972	1971	1970
	- - - - - Piasters/KG - - - - -							
Damascus	249	225	212	197	180	145	147	124
Aleppo	242	225	226	199	211	159	134	125
Homs	245	240	220	203	188	167	148	n.a.
Hama	230	232	233	198	191	161	136	n.a.
Tartous	245	227	210	186	148	138	134	n.a.
Latakia	241	222	205	183	152	141	130	n.a.
Idleb	253	239	227	202	175	142	141	n.a.
Al Rakka	267	250	242	210	195	160	150	n.a.
Deir Ezor	274	253	245	215	210	154	146	n.a.
Al Hasakeh	275	264	242	218	198	159	155	n.a.
Sweida	266	247	223	200	165	149	138	n.a.
Dara	265	239	228	205	172	170	140	n.a.

n.a. - not available

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1970-1978.

Appendix 1.A

Table 25.

Sheep Meat; Retail and Wholesale, Annual Average Prices,
Damascus and Aleppo, 1963-77

Year	Damascus		Aleppo	
	Retail Dressed	Wholesale With Bones	Retail Dressed	Wholesale With Bones
-----Piasters/KG-----				
1977	1880	1200	1700	1300
1976	1729	1000	1510	1300
1975	1394	950	1350	-
1974	1368	900	1325	946
1973	852	n.a.	876	n.a.
1972	720 ^a	n.a.	776 ^a	n.a.
1971	n.a.	n.a.	n.a.	n.a.
1970	623	392	575	427
1969	573	463	550	428
1968	611	415	578	391
1967	571	432	532	395
1966	477	371	503	332
1965	471	372	454	325
1964	478	346	471	317
1963	492	327	434	302

n.a. - not available

^aMutton, 1972-1975.

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1963-77.

Appendix 1.A

Table 26.

Cow Meat; Retail and Wholesale, Annual Average Prices

In Damascus and Aleppo, 1963-67

Year	Damascus		Aleppo	
	Retail Dressed	Wholesale With Bones	Retail Dressed	Wholesale With Bones
- - - - -Piasters/KG- - - - -				
1977	1450	n.a.	1413	n.a.
1976	1146	n.a.	1068	n.a.
1975	1050	n.a.	968	n.a.
1974	950	n.a.	943	n.a.
1973	688	n.a.	696	n.a.
1972	623 ^a	n.a.	613 ^a	n.a.
1971	n.a.	n.a.	n.a.	n.a.
1970	487	351	431	334
1969	433	333	405	321
1968	417	363	419	364
1967	396	313	391	296
1966	328	261	357	244
1965	350	250	321	225
1964	335	237	331	235
1963	352	234	295	220

n.a. - not available

^aBeef dressed 1972-1975; 1976 Statistical Abstract, Page 515;
may be different than 1963-1970.

Source: (Central Bureau of Statistics), Statistical Abstract,
various issues 1963-78.

Appendix 1.A

Table 27.

Calf Meat Dressed; Retail and Wholesale Annual
Average Prices, in Damascus and Aleppo, 1964-77

Year	Damascus		Aleppo	
	Retail	Wholesale	Retail	Wholesale
----- Piasters/KG -----				
1977	1500	1450	1354	1413
1976	1417	1146	1145	1068
1975	1100	920	1023	-
1974	1075	906	1000	804
1973	760	655	773	680
1972	666	n.a.	638	n.a.
1971	n.a.	n.a.	n.a.	n.a.
1970	515	n.a.	464	n.a.
1969	465	n.a.	455	n.a.
1968	457	n.a.	460	n.a.
1967	435	n.a.	446	n.a.
1966	378	n.a.	396	n.a.
1965	385	n.a.	390	n.a.
1964	371	n.a.	368	n.a.

n.a. - not available

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1963-78.

Appendix 1.A

Table 28.

Live Poultry; Retail & Wholesale Annual Average Prices,
Damascus & Aleppo, 1964-77

Year	Damascus		Aleppo	
	Retail	Wholesale	Retail	Wholesale
- - - - - Piasters/KG - - - - -				
1977	712	663	710	670
1976	665	600	653	620
1975	640	593	595	560
1974	655	602	595	573
1973	372	328	390	313
1972	311 ^a	283 ^a	350	239 ^a
1971	n.a.	310	n.a.	299
1970	318	294 ^a	316	378 ^a
1969	342	n.a.	340	n.a.
1968	318	n.a.	286	n.a.
1967	302	n.a.	274	n.a.
1966	256	n.a.	241	n.a.
1965	263	n.a.	253	n.a.
1964	301	n.a.	350	n.a.

n.a. - not available

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1963-78.

Appendix 1.A
Table 29.

Local White Cheese; Retail Annual Average Prices, by Mohafazat, 1963-77

Mohafazat	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963
	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -
	Piasters/KG														
Damascus	700	665	663	477	417	374	379	305	291	284	281	376	248	276	231
Aleppo	750	664	559	535	475	390	439	336	300	323	332	340	310	290	272
Homs	614	500	474	457	393	321	368	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Hama	644	525	497	456	403	301	371	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Tartous	634	532	496	475	413	300	274	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Latakia	683	639	520	463	455	349	388	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Idleb	642	608	496	450	483	403	448	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al Rakka	645	506	450	488	425	333	323	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Deir Ezor	692	500	495	420	377	300	-	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al Hasakeh	622	502	455	418	440	311	390	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Sweida	625	622	500	424	426	-	-	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Dara	638	562	500	497	475	331	318	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

n.a. - not available

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1963-1978.

Appendix 1.A

Table 30.

Local White Cheese; Wholesale Annual Average
Prices, by Mohafazat, 1973-77

Mohafazat	1977	1976	1975	1974	1973
	- - - - - Piasters/KG- - - - -				
Damascus	590	515	450	438	383
Aleppo	650	604	497	467	411
Homs	550	433	440	400	370
Hama	600	475	390	437	375
Tartous	575	500	420	425	325
Latakia	600	549	476	426	416
Idleb	573	572	460	425	430
Al Rakka	545	440	400	453	390
Deir Ezor	500	393	410	370	340
Al Hasakeh	-	-	-	325	350
Sweida	598	590	450	-	390
Dara	563	517	446	435	375

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1970-1978.

Appendix 1.A

Table 31.

Fresh Milk; Retail Annual Average Prices, by Mohafazat, 1963-77

Mohafazat	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963
	----- Piasters/KG -----														
Damascus	130	120	100	95	83	69	68	59	58	52	60	54	50	51	49
Aleppo	132	119	115	117	88	84	68	76	60	69	70	63	64	65	62
Homs	112	100	100	75	72	70	62	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Hama	112	97	84	77	75	65	60	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Tartous	106	92	88	70	71	60	57	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Latakia	100	92	84	72	65	58	57	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Idleb	121	92	85	90	98	67	55	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al Rakka	108	92	85	112	85	100	98	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Deir Ezor	96	88	80	-	65	63	54	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al Hasakeh	125	110	-	68	65	56	64	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Sweida	120	112	100	95	80	79	73	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Dara	116	103	95	88	65	60	55	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

n.a. - not available

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1963-1978.

Appendix 1.A

Table 32.

Fresh Milk; Wholesale Annual Average Prices,
by Mohafazat, 1973-77

Mohafazat	1977	1976	1975	1974	1973
	- - - - -Piasters/KG - - - - -				
Damascus	115	100	90	85	71
Aleppo	120	107	96	101	75
Homs	102	95	95	-	56
Hama	99	89	74	70	58
Tartous	93	86	75	61	56
Latakia	95	83	75	63	57
Idleb	108	82	77	69	72
Al Rakka	102	82	75	97	60
Deir Ezor	88	76	70	-	57
Al Hasakeh	-	-	-	65	60
Sweida	115	108	95	81	65
Dara	110	95	80	75	57

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1970-1978.

Appendix 1.A
Table 33.

Fresh Yogurt; Retail Annual Average Prices, by Mohafazat, 1964-77

Mohafazat	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964
	- - - - -Piasters/KG - - - - -													
Damascus	145	142	125	110	96	91	84	72	69	71	69	66	62	62
Aleppo	165	180	194	186	98	132	126	101	99	96	-	65	65	82
Homs	133	110	106	100	91	85	76	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Hama	133	110	95	89	95	92	80	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Tartous	115	94	75	85	73	58	54	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Latakia	120	105	95	81	75	68	67	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Idleb	160	133	120	160	105	98	80	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al Rakka	158	146	135	122	108	110	112	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Deir Ezor	123	100	95	101	70	65	59	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Al Hasakeh	134	118	100	85	81	71	77	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Sweida	125	117	105	88	84	75	75	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Dara	123	110	95	94	70	65	61	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

n.a. - not available

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1963-1978.

Appendix 1.A

Table 34.

Fresh Yogurt; Wholesale Annual Average
Prices, by Mohafazat, 1973-77

Mohafazat	1977	1976	1975	1974	1973
- - - - -Piasters/KG - - - - -					
Damascus	133	125	115	98	87
Aleppo	135	165	154	135	95
Homs	113	102	100	93	78
Hama	125	104	80	76	80
Tartous	105	85	68	64	65
Latakia	105	91	86	73	70
Idleb	140	120	109	97	95
Al Rakka	132	140	114	111	93
Deir Ezor	113	-	80	78	65
Al Hasakeh	114	-	83	65	66
Sweida	115	112	100	-	79
Dara	112	103	90	85	65

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1972-1978.

Appendix 1.A

Table 35.

Eggs, Retail & Wholesale Annual Average Prices,
Damascus and Aleppo, 1963-77

Year	Damascus		Aleppo	
	Retail	Wholesale	Retail	Wholesale
----- Piasters/KG -----				
1977	359	319	333	292
1976	292	250	276	240
1975	260	225	265	232
1974	272	249	282	245
1973	214	190	231	210
1972	159	140	172	140
1971	160	140	178	150
1970	158	140	158	140
1969	155	146	158	139
1968	142	128	140	120
1967	143	134	145	119
1966	134	131	123	98
1965	128	110	131	120
1964	132	120	120	110
1963	128	110	119	100

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1969-78.

Appendix 1.A

Table 36.

Cotton Seed Oil; Retail & Wholesale Annual Average Prices,
Damascus and Aleppo, 1963-77

Year	Damascus				Aleppo			
	Retail		Wholesale		Retail		Wholesale	
----- Piasters/KG -----								
1977	290	160	275	148	290	160	275	148
1976	290	160	275	148	290	160	275	148
1975	290	160 ^a	275	148 ^a	290	160 ^a	275	148 ^a
1974	178		149		189		146	
1973	167		151		185		162	
1972	154		141		151		138	
1971	150		136		160		141	
1970	149		143		162		135	
1969	142		140		153		134	
1968	146		140		161		135	
1967	149		141		158		140	
1966	137		127		144		124	
1965	129		116		120		108	
1964	105		96		116		96	
1963	124		113		131		145	

^aWith supply voucher; other is "market" price.

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1969-78.

Appendix 1.A

Table 37.

Local Olive Oil; Retail & Wholesale Annual
Average Prices, Damascus and Aleppo, 1963-77

Year	Damascus		Aleppo	
	Retail	Wholesale	Retail	Wholesale
- - - - - Piasters/KG - - - - -				
1977	782	670	775	654
1976	770	666	675	631
1975	645	595	656	595
1974	550	512	602	525
1973	482	460	492	440
1972	472	457	475	428
1971	449	426	460	408
1970	341	316	316	282
1969	282	275	271	251
1968	306	281	276	251
1967	305	279	254	225
1966	306	225	248	273
1965	260	245	239	197
1964	332	308	274	237
1963	350	307	319	288

Source: (Central Bureau of Statistics), Statistical Abstracts, various issues 1969-78.

Appendix 1.A

Table 38.

Sugar Powder; Retail & Wholesale Annual Average Prices,
Damascus & Aleppo, 1963-77

Year	Damascus				Aleppo			
	Retail		Wholesale		Retail		Wholesale	
- - - - - Piasters/KG - - - - -								
1977	300	85	292	82	300	85	292	82
1976	300	85	292	82	300	85	292	82
1975	300	85	292	82	300	85	292	82
1974	145	85	141	82	145	85	141	82
1973	145	85 ^a	141	82 ^a	145	85 ^a	141	82 ^a
1972	85		82		85		82	
1971	85		82		85		82	
1970	100		97		100		97	
1969	100		97		100		97	
1968	100		97		100		97	
1967	100		97		100		97	
1966	100		97		100		97	
1965	118		115		118		115	
1964	94		92		94		92	

^aSupply voucher sugar.

Source: (Central Bureau of Statistics), Statistical Abstract, various issues 1969-78.

Appendix 1.A

Table 39.

Wheat Balance Sheet; Domestic Production, Imports, Exports,
Stocks, and Derived Gross and Per Capita Disappearance, 1961-77

Year	Production	Imports	Exports	Disappearance	Per Capita Disappearance
----- 1000 MT -----			----- -KG -----		
1977	1217	458	3.0	1672	208.8
1976	1790	188	6.2	1972	255.7
1975	1550	281.7	2.8	1829	245.9
1974	1630	219.3	2.9	1846	254.9
1973	593	118.6	124.2	587	83.9
1972	1808	359.7	278.7	1889	279.6
1971	846	748.7	0.3	1594	244.2
1970	624	541.9	0.2	1166	184.9
1969	1003	142.6	0.7	1145	186.8
1968	600	307.1	5.1	902	151.4
1967	1049	161.9	0.2	1211	209.4
1966	559	289.5	1.7	1381	246.2
1965	1044	63.0	25.0	1131	208.1
1964	1100	4.3	197.2	900	171.1
1963	1093	7.2	182.1	918	180.5
1962	1093	203.3	213.8	1082	220.2
1961	1093	269.5	-	-	-

Source: Central Bureau of Statistics: Production from Statistical Abstract; imports and exports from Statistics of the Foreign Trade of Syria; gross disappearance = production + imports + stocks - exports; per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 40.

Rice Balance Sheet; Domestic Production, Imports, Exports, Stocks,
and Derived Gross and Per Capita Disappearance, 1961-77

Year	Production	Imports	Exports	Disappearance	Per Capita Disappearance
	----- 1000 MT -----			----- KG -----	
1977	0.2	40.1	0.1	40	5.0
1976	1.1	61.0	-	62	8.0
1975	5.2	50.0	-	55	7.4
1974	2.4	88.0	0.1	90	12.4
1973	0.0	50.7	-	51	7.3
1972	0.4	55.7	0.1	56	8.3
1971	0.4	49.5	0.1	50	7.7
1970	1.3	39.9	-	41	6.5
1969	2.5	30.4	-	33	5.4
1968	7.6	44.0	-	52	8.7
1967	2.2	32.4	-	35	6.2
1965	2.2	28.5	-	31	5.6
1964	1.2	36.3	-	37	7.0
1963	1.0	20.6	-	22	4.3
1962	1.0	35.3	-	36	7.3
1961	1.0	25.9	-	27	5.7

Source: Central Bureau of Statistics: Production from Statistical Abstract; imports and exports from Statistics of the Foreign Trade of Syria; gross disappearance = production + imports + stocks - exports; per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 41.

Barley Balance Sheet; Domestic Production, Imports, Exports,
Stocks, and Derived Gross and Per Capita Disappearance, 1961-77

Year	Production	Imports	Exports	Disappearance	Per Capita Disappearance
- - - - - 1000 MT - - - - -		- - - - - KG- -			
1977	337	-	127.2	210	26.2
1976	1059	0.1	65.2	994	128.9
1975	596	-	-	596	80.1
1974	655	31.6	0.2	686	94.7
1973	102	-	5.4	97	13.9
1972	710	2.8	36.6	676	100.0
1971	262	76.4	0.1	600	91.9
1970	235	57.8	178.1	115	18.2
1969	627	-	273.1	354	57.7
1968	512	0.1	104.5	408	68.5
1967	589	9.5	34.1	564	97.5
1966	203	-	17.1	186	33.2
1965	690	-	244.8	445	81.9
1964	637	-	208.0	429	81.5
1963	649	-	401.8	247	58.5
1962	649	16.9	390.4	275	56.0
1961	649	22.0	25.5	645	136.1

Source: Central Bureau of Statistics: Production from Statistical Abstract; imports and exports from Statistics of the Foreign Trade of Syria; gross disappearance = production + imports + stocks - exports; per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 42.

Maize Balance Sheet; Domestic Production, Imports, Exports,
Stocks, and Derived Gross and Per Capita Disappearance, 1961-77

Year	Production	Imports	Exports	Disappearance	Per Capita Disappearance
- - - - - 1000 MT - - - - - KG- -					
1977	58.7	13.3	-	72	9.0
1976	51.0	22.5	-	73	9.5
1975	27.0	13.0	-	40	5.4
1974	19.0	0.4	-	19	2.6
1973	15.0	4.6	5.4	14	2.0
1972	15.0	2.4	-	17	2.5
1971	8.0	3.0	-	11	1.7
1970	8.0	0.8	-	9	1.4
1969	9.0	0.1	0.1	9	1.5
1968	8.0	6.9	0.1	15	2.5
1967	9.0	0.2	1.0	8	1.4
1966	7.0	7.7	1.6	13	2.3
1965	6.0	5.9	1.9	11	2.0
1964	6.0	2.5	1.7	8	1.5
1963	7.0	0.3	1.4	6	1.2
1962	7.0	7.1	1.2	13	2.6
1961	7.0	11.6	4.4	14	2.9

Source: Central Bureau of Statistics: Production from Statistical Abstract; imports and exports from Statistics of the Foreign Trade of Syria; gross disappearance = production + imports + stocks - exports; per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 43.

Millet Balance Sheet; Domestic Production, Imports, Exports,
Stocks, and Derived Gross and Per Capita Disappearance, 1961-77

Year	Production	Imports	Exports	Disappearance	Per Capita Disappearance
	----- 1000 MT -----			----- KG-----	
1977	23.7			24	3.0
1976	16			16	2.1
1975	14			14	1.9
1974	14	2		16	2.2
1973	13			13	1.9
1972	27			27	4.0
1971	19			19	2.9
1970	13			13	2.1
1969	21			21	3.4
1968	37			37	6.2
1967	39			39	6.7
1966	15			15	2.7
1965	44			44	8.1
1964	44			44	8.4

Source: Central Bureau of Statistics: Production from Statistical Abstract; imports and exports from Statistics of the Foreign Trade of Syria; gross disappearance = production + imports + stocks - exports; per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 44.

Groundnuts in Shell (Peanuts) Balance Sheet; Domestic Production,
Imports, Exports, Stocks, and Derived Gross and Per Capita
Disappearance, 1964-77

Year	Production	Imports	Exports	Disappearance	Per Capita Disappearance
	- - - - - 1000 MT - - - - -			- - - - - KG - -	
1977	20.2		4.5	15.7	2.0
1976	23.8		2.7	21.1	2.7
1975	20.8		2.3	18.5	2.5
1974	19.6		2.1	17.5	2.4
1973	23.0		4.3	18.7	2.7
1972	23.5	-	4.7	18.8	2.8
1971	20.1	-	3.7	16.4	2.5
1970	16.3	-	5.2	11.1	1.8
1969	17.2	-	6.8	10.4	1.7
1968	13.8	-	4.8	9.0	1.5
1967	13.5	-	4.4	9.1	1.6
1966	13.4		5.1	8.3	1.5
1965	11.6	-	5.7	5.9	1.1
1964	10.4	-	5.2	5.2	1.0

Source: Central Bureau of Statistics: Production from Statistical Abstract; imports and exports from Statistics of the Foreign Trade of Syria; gross disappearance = production + imports + stocks - exports; per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 45.

Potatoes Balance Sheet; Domestic Production, Imports, Exports,
Stocks, and Derived Gross and Per Capita Disappearance, 1964-77

Year	Production	Imports	Exports	Disappearance	Per Capita Disappearance
	- - - - -1000 MT - - - - -			- - - - - KG - - -	
1977	164.0	14.2	0.3	178	22.2
1976	125.9	5.0	0.6	129	16.7
1975	125.0	9.2	0.6	134	18.0
1974	105.0	14.4	0.3	119	16.4
1973	110.0	10.1	0.6	119	17.0
1972	119.0	18.2	4.5	133	19.7
1971	72.0	14.6	-	87	13.3
1970	65.0	10.7	-	76	12.1
1969	47.0	8.1	-	55	9.0
1968	50.0	8.5	0.5	58	9.7
1967	40.0	15.5	-	55	9.5
1966	40.8	9.4	0.5	50	8.9
1965	48.9	8.8	1.7	56	10.3
1964	47.7	22.4	0.8	69	13.2

Source: Central Bureau of Statistics: Production from Statistical Abstract; imports and exports from Statistics of the Foreign Trade of Syria; gross disappearance = production + imports + stocks - exports; per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 46.

Sugar Balance Sheet, in Raw Sugar Value^a; Domestic Production,
Imports, Disappearance, Per Capita Disappearance, 1964-77

Year	Production	Imports	Disappearance	Per Capita Disappearance
	- - - - -	1000 MT	- - - - -	KG - - -
1977	20.5	190.3	195.7	24.4
1976	26.5	171.5	203.4	26.4
1975	21.7	155.3	214.1	28.8
1974	18.0	225.5	220.0	30.4
1973	18.1	202.5	200.0	28.6
1972	35.0	155.0	180.0	26.6
1971	32.0	217.0	160.0	24.5
1970	26.4	120.8	147.2	23.3
1969	22.0	100.5	122.5	20.0
1968	19.3	59.5	78.8	13.2
1967	17.9	83.4	101.3	17.5
1966	22.0	69.5	91.5	16.3
1965	19.9	80.0	99.9	18.4
1964	19.9	80.7	100.6	19.1

^aFrom 1971-77: production, imports, and disappearance taken from "Statistical Bulletin", International Sugar Organization, London: May 1975, May 1976, and Oct./Nov. 1978; from 1964-70: production taken from Statistical Abstract, Agriculture Section, various issues, Central Bureau of Statistics, using 11% as conversion from beet to raw sugar; imports taken from Statistics of the Foreign Trade of Syria, various issues, Central Bureau of Statistics.

Source: Central Bureau of Statistics: Production from Statistical Abstract; imports and exports from Statistics of the Foreign Trade of Syria; gross disappearance = production + imports + stocks - exports; per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 47.

Cotton Lint Balance Sheet; Domestic Production, Imports, Exports,
Stocks, and Derived Gross and Per Capita Disappearance, 1964-77

Year	Production	Imports	Stocks	Exports	Disappearance	Per Capita Disappearance
	- - - - -1000 MT - - - - -				- - - - - KG - - - - -	
1977	144.1	-		141.7	7	0.9
1976	156.3	-	8.6	117.5	47	6.1
1975	158.3	-	11.4	102.1	68	9.1
1974	144.8	-	5.4	109.9	40	5.5
1973	155.5	-	1.5	119.2	38	5.4
1972	163.1	-	2.0	116.4	49	7.3
1971	157.4	-	2.0	119.0	40	6.1
1970	148.8	-	1.0	135.9	14	2.2
1969	149.4	-	0.2	124.1	25	4.1
1968	153.6	-	7.7	99.6	62	10.4
1967	126.5	-	0.1	113.8	13	2.2
1966	141.5	-	-	121.5	20	3.6
1965	203.5	-	-	121.7	82	15.1
1964	189.1	-	-	146.6	43	8.1

Source: Central Bureau of Statistics: Production from Statistical Abstract, imports and exports from Statistics of the Foreign Trade of Syria; gross disappearance = production + imports + stocks - exports; per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 48.

Tobacco Balance Sheet; Domestic Production, Imports, Exports,
Stocks, and Derived Gross and Per Capita Disappearance, 1964-78

Year	Production	Imports	Exports	Disappearance	Per Capita Disappearance
- - - - - 1000 MT - - - - - KG - -					
1978	13.0	.			.
1977	11.5	1.6	1.5	10.6	1.3
1976	12.0	6.2	3.7	14.5	1.9
1975	12.0	5.0	4.5	12.5	1.7
1974	10.0	3.3	2.6	10.7	1.5
1973	11.0	1.3	2.0	10.3	1.5
1972	11.6	1.4	4.2	8.8	1.3
1971	7.5	0.8	3.6	4.7	0.7
1970	6.6	1.2	5.5	2.3	0.4
1969	9.0	0.5	2.0	7.5	1.2
1968	8.0	0.9	1.9	7.0	1.3
1967	6.0	0.3	1.2	5.1	0.9
1966	9.8	0.3	0.5	9.6	1.7
1965	11.9	0.9	0.0	12.8	2.3
1964	11.2	0.4	0.0	11.6	2.2

Source: Central Bureau of Statistics: Production from Statistical Abstract; imports and exports from Statistics of the Foreign Trade of Syria; gross disappearance = production + imports + stocks - exports; per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 49.

Legumes^a Balance Sheet; Domestic Production, Imports, Exports,
Stocks, and Derived Gross and Per Capita Disappearance, 1964-77

Year	Production	Imports	Exports	Disappearance	Per Capita Disappearance
	- - - - - 1000 MT - - - - -			- - - - - KG - -	
1977	226.0	0.3	50.8	175	21.9
1976	274.8	0.2	24.3	251	32.5
1975	147.3	0.1	18.0	129	17.3
1974	210.0	0.1	17.9	192	26.5
1973	81.2	0.1	15.1	66	9.4
1972	213.5	0.4	37.2	177	26.2
1971	152.6	0.4	32.2	121	18.5
1970	109.0	0.1	13.8	95	15.1
1969	231.8	0.3	41.1	191	31.1
1968	127.1	0.1	40.3	87	14.6
1967	218.9	0.7	62.5	157	27.1
1966	74.7	0.4	20.9	54	9.7
1965	187.2	0.8	99.5	89	16.3
1964	194.4	0.7	58.7	136	25.9

^aIncludes beans, peas, lentils, vetch, chick peas.

Source: Central Bureau of Statistics: Production from Statistical Abstract; imports and exports from Statistics of the Foreign Trade of Syria; gross disappearance = production + imports + stocks - exports; per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 50.

Dairy Products Balance Sheet; Domestic Production, Imports,
Exports, Stocks, and Derived Gross and Per Capita
Disappearance, 1964-77

Year	Production	Imports	Exports	Disappearance	Per Capita Disappearance
	- - - - -	- - - - -	-1000 MT - - - - -	- - - - -	KG - - -
1977	938.6	40.2	1.3	977	122.0
1976	954.8	30.4	1.2	984	127.6
1975	807.1	16.5	1.0	822	110.6
1974	711.1	22.5	0.8	733	101.2
1973	555.4	24.5	0.6	579	83.3
1972	634.8	21.6	1.0	655	96.9
1971	633.3	21.3	0.3	654	100.2
1970	649.4	11.8	0.9	660	104.7
1969	719.3	10.2	1.2	728	118.8
1968	742.3	7.2	1.7	748	125.5
1967	710.5	4.5	1.4	714	123.4
1966	783.6	5.7	1.9	787	140.4
1965	782.3	4.3	2.2	784	144.3
1964	717.0	4.6	1.8	720	136.8

Source: Central Bureau of Statistics: Production from Statistical Abstract; imports and exports from Statistics of the Foreign Trade of Syria; gross disappearance = production + imports + stocks - exports; per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 51.

Eggs Balance Sheet; Domestic Production, Imports, Exports, Stocks,
and Derived Gross and Per Capita Disappearance, 1964-77

Year	Production	Imports	Exports	Disappearance	Per Capita Disappearance
	1000 MT			KG	
1977	33.6	1.4	0.1	34.9	4.36
1976	35.0	2.3	0.2	37.1	4.81
1975	32.8	2.6	0.2	35.2	4.73
1974	20.3	5.0	-	25.3	3.49
1973	18.5	4.6	0.1	23.0	3.29
1972	16.2	8.4	-	24.6	3.64
1971	15.1	7.0	-	22.1	3.39
1970	13.7	3.9	-	17.6	2.79
1969	17.7	3.8	0.0	21.5	3.51
1968	15.7	2.2	-	17.9	3.00
1967	10.6	0.7	0.1	11.2	1.93
1966	11.1	0.2	-	11.3	2.01
1965	15.3	0.1	-	15.4	2.83
1964	14.7	0.1	-	14.8	2.81

Source: Central Bureau of Statistics: Production from Statistical Abstract; imports and exports from Statistics of the Foreign Trade of Syria; gross disappearance = production + imports + stocks - exports; per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 52.

Poultry Meat Balance Sheet; Domestic Production, Imports, Exports, Stocks, and Derived Gross and Per Capita Disappearance, 1967-77

Year	Production ^a	Imports	Exports	Disappearance	Per Capita Disappearance
	----- 1000 MT -----			----- -KG- -----	
1977	17.0	1.0	-	18.0	2.2
1976	13.8	-	-	13.8	1.8
1975	11.7	0.6	-	12.3	1.7
1974	7.3	2.5	-	9.8	1.3
1973	6.3	-	-	6.3	0.9
1972	7.0	-	-	7.0	1.0
1971	6.5	-	-	6.5	1.0
1970	5.0	-	-	5.0	0.8
1969	4.9	-	-	4.9	0.8
1968	5.8	-	-	5.8	1.0
1967	5.1	-	-	5.1	0.9

^aProduction based on 1.36 kg per chicken slaughtered.

Source: Central Bureau of Statistics: Production from Statistical Abstract; imports and exports from Statistics of the Foreign Trade of Syria; gross disappearance = production + imports + stocks - exports; per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 53.

Beef Balance Sheet; Domestic Production, Imports, Exports,
Stocks, and Derived Gross and Per Capita Disappearance, 1966-77

Year	Production ^a	Imports	Exports	Disappearance	Per Capita Disappearance
	1000 MT			KG	
1977	12.6	-	-	12.6	1.6
1976	14.5	-	-	14.5	1.9
1975	11.4	-	-	11.4	1.5
1974	7.1	-	-	7.1	1.0
1973	4.3	0.1	0.1	4.3	0.6
1972	4.8	0.3	0.1	5.0	0.7
1971	8.3	0.3	0.2	8.4	1.3
1970	7.8	0.5	0.2	8.1	1.3
1969	7.4	0.1	0.1	7.4	1.2
1968	6.9	1.0	0.4	7.5	1.3
1967	7.8	-	0.3	7.5	1.3
1966	7.4	0.6	0.8	7.2	1.3

^aProduction based on 172.9 kg per cow slaughtered.

Source: Central Bureau of Statistics: Production from Statistical Abstract; imports and exports from Statistics of the Foreign Trade of Syria; gross disappearance = production + imports + stocks - exports; per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 54.

Mutton, Lamb, and Goat^a Balance Sheet; Domestic Production, Imports, Exports, Stocks, and Derived Gross and Per Capita Disappearance, 1964-77

Year	Production	Imports	Exports	Disappearance	Per Capita Disappearance
	- - - - - 1000 MT - - - - -			- - - - - KG - - -	
1977	55.2	0.6	-	55.8	7.0
1976	49.1	1.1	-	50.2	6.5
1975	43.0	3.3	-	46.3	6.2
1974	32.2	5.5	-	37.7	5.2
1973	68.0	-	-	68.0	9.7
1972	61.7	-	-	61.7	9.1
1971	69.0	-	-	69.0	10.6
1970	65.1	-	-	65.1	10.3
1969	55.2	-	-	55.2	9.0
1968	52.7	-	-	52.7	8.8
1967	53.7	-	-	53.7	9.3
1966	65.1	-	-	65.1	11.6
1965	53.8	-	-	53.8	9.9
1964	51.1	-	-	51.1	9.7

^aProduction based on 38.28 kg per sheep slaughtered and 75.8 kg per goat slaughtered.

Source: Central Bureau of Statistics: Production from Statistical Abstract; imports and exports from Statistics of the Foreign Trade of Syria; gross disappearance = production + imports + stocks - exports; per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 55.

Camels Balance Sheet; Slaughter, Gross Disappearance,
Per Capita Disappearance, 1964-77

Year	Slaughter (Head)	Gross ^a Disappearance	Per Capita Disappearance
- - - - - KG - - - - -			
1977	6544	1963200	0.2
1976	7334	2200200	0.3
1975	7300	2190000	0.3
1974	9669	2900700	0.4
1973	9916	2974800	0.4
1972	14865	4459500	0.7
1971	13505	4051500	0.6
1970	13213	3963900	0.6
1969	13506	4051800	0.7
1968	9397	2819100	0.5
1967	9058	2717400	0.5
1966	6702	2010600	0.3
1965	7576	2272800	0.4
1964	7759	2327700	0.4

^aBased on 600 kg/camel and .50 conversions to carcass weight.

Source: Central Bureau of Statistics: Production from Statistical Abstract; imports and exports from Statistics of the Foreign Trade of Syria; gross disappearance = production + imports + stocks - exports; per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 56.

Miscellaneous Meats Balance Sheet; Imports, Exports,
Per Capita Disappearance, 1964-77

Year	Imports	Exports	Per Capita Disappearance
	- - - -1000 MT	- - - - -	KG - - -
1977	1.9	-	0.2
1976	0.5	-	0.1
1975	2.6	-	0.3
1974	5.5	-	0.7
1973	3.4	-	0.5
1972	1.0	-	0.1
1971	2.1	-	0.3
1970	1.2	-	0.2
1969	0.9	-	0.1
1968	0.3	-	0.1
1967	0.7	-	0.1
1966	1.1	-	0.2
1965	-	-	0.0
1964	1.2	-	0.2

Source: Central Bureau of Statistics: Imports and exports from Statistics of the Foreign Trade of Syria; per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 57.

Total Meat^a Balance Sheet; Disappearance and
Per Capita Disappearance, 1964-77

Year	Disappearance	Per Capita Disappearance
	1000 MT	
1977	86.8	11.04
1976	79.6	10.42
1975	68.3	9.48
1974	49.5	7.54
1973	81.6	12.17
1972	78.1	11.66
1971	87.9	13.77
1970	81.9	13.19
1969	71.6	11.78
1968	68.2	11.55
1967	69.3	12.08
1966 ^b	74.5	13.48
1965 ^c	56.1	10.32
1964 ^c	53.4	10.35

^aIncludes sheep & goat, camel, beef, poultry, and miscellaneous meats.

^bIncludes only sheep & goat, camel, and beef.

^cIncludes only sheep & goat, and camel meat.

Source: Appendix Tables 52-56.

Appendix 1.A

Table 58.

Tanned box hides (uppers), public sector

Balance Sheet; Production and Gross

Disappearance, 1971-77

Year	Production	Gross Disappearance
	(Sq. Ft)	(Sq. Ft)
1977	3203	3203
1976	3138	3138
1975	3354	3354
1974	3300	3300
1973	3227	3227
1972	2969	2969
1971	2698	2698

Source: Central Bureau of Statistics: Production from Statistical Abstract; imports and exports from Statistics of the Foreign Trade of Syria; gross disappearance = production + imports + stocks - exports.

Appendix 1.A

Table 59.

Tanned Hides (sole), Public Sector Balance Sheet; Domestic Production,
Imports, Exports, Stocks, and Derived Gross and Per Capita
Disappearance, 1966-77

Year	Production	Imports	Exports	Net ^a	Gross Disappearance ^{bc}
----- MT -----					
1977	233	6157	2748	3642	3704
1976	224	5536	2252	3508	3568
1975	238	4246	2047	2437	2501
1974	246	3126	1961	1411	1476
1973	239	4148	3103	1284	1347
1972	227	2856	3245	-162	n.a.
1971	209	1964	2310	-137	n.a.
1970	n.a.	3304	2500	n.a.	n.a.
1969	n.a.	2835	2119	n.a.	n.a.
1968	n.a.	3095	2253	n.a.	n.a.
1967	n.a.	2162	1517	n.a.	n.a.
1966	n.a.	4055	1834	n.a.	n.a.

^aIncludes only public sector.

^bAdd private sector; 25% of public sector.

^cAdd box (uppers), 1 sq. ft. = 1 kg.

n.a. - not available

Source: Central Bureau of Statistics: Production from Statistical Abstract; imports and exports from Statistics of the Foreign Trade of Syria; gross disappearance = production + imports + stocks - exports; per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 60.

Wool, Washed Ton Balance Sheet; Domestic Products, Imports,
Exports, Stocks, and Derived Gross and Per Capita
Disappearance, 1966-77

Year	Production	Imports	Exports	Disappearance
- - - - - MT - - - - -				
1977	6834	6319	7961	5192
1976	6560	4058	6202	4416
1975	6170	5433	6460	5143
1974	7114	3997	8650	2461
1973	5497	2730	12091	-3864
1972	6071	2111	9802	-1620
1971	6443	1341	7062	722
1970	7015	1597	5062	3550
1969	7951	1076	5818	3209
1968	6448	1107	6027	1528
1967	6678	903	7316	265
1966	5649	677	8023	-1697

Source: Central Bureau of Statistics: Production from Statistical Abstract; imports and exports from Statistics of the Foreign Trade of Syria; gross disappearance = production + imports + stocks - exports; per capita disappearance = gross disappearance / population.

Appendix 1.A

Table 61.

Vegetable Oil (Cotton Seed) Balance Sheet; Domestic Production,
Imports, Exports, Stocks, and Derived Gross and Per Capita
Disappearance, 1969-77

Year	Production	Imports	Exports	Gross Disappearance	Per Capita Disappearance
	----- 1000 MT -----			----- KG -----	
1977	24.040	-	-	24.0	3.00
1976	24.727	-	-	24.7	3.20
1975	22.102	-	-	22.1	2.97
1974	25.4	-	-	25.4	3.51
1973	28.7	-	-	28.7	4.10
1972	27.5	-	-	27.5	4.07
1971	26.2	-	2.3	23.9	3.66
1970	25.1	-	4.3	20.8	3.30
1969	26.3	-	6.3	20.0	3.26
1968	22.9	-	9.9	13.0	2.18
1967	26.1	-	6.1	20.0	3.45
1966	n.a.	-	14.2		

Source: Central Bureau of Statistics: Production from Statistical Abstract; imports and exports from Statistics of the Foreign Trade of Syria; gross disappearance = production + imports + stocks - exports; per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 62.

Fruits & Nuts Balance Sheet; Domestic Production, Imports, Exports,
Stocks, and Derived Gross and Per Capita Disappearance, 1964-77

Year	Production	Imports	Stocks	Exports	Disappearance	Per Capita Disappearance
			1000 MT		KG	
1977	683.3	187.1		9.8	860.6	107.5
1976	648.8	197.7		15.5	831.0	107.7
1975	610.6	157.3		12.4	755.5	101.6
1974	505.9	153.9		18.0	641.8	88.6
1973	359.9	181.0		6.7	534.1	76.4
1972	455.0	127.8		52.6	530.2	78.5
1971	434.5	175.0		50.5	559.0	85.7
1970	373.5	132.7		20.3	485.9	77.1
1969	422.1	114.2		48.2	488.1	79.6
1968	396.1	129.4		33.3	492.6	82.7
1967	400.2	121.9		51.0	471.1	81.2
1966	370.0	103.4		32.3	441.1	78.6
1965	357.0	117.3		51.0	423.3	77.9
1964	406.7	159.7		41.5	524.9	99.8

Source: Central Bureau of Statistics: Production from Statistical Abstract;
imports and exports from Statistics of the Foreign Trade of Syria;
gross disappearance = production + imports + stocks - exports;
per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 63.

Total Olives Balance Sheet; Domestic Production, Imports, Exports,
Stocks, and Derived Gross and Per Capita Disappearance, 1964-77

Year	Production	Imports	Exports	Disappearance	Per Capita Disappearance
	- - - - -1000 MT - - - - -			- - - - - KG - - - - -	
1977	175	-	-	175	21.9
1976	233	-	-	233	30.2
1975	157	-	-	157	21.1
1974	215	-	-	215	29.7
1973	73	-	-	73	10.4
1972	161	-	-	161	23.8
1971	117	-	-	117	17.9
1970	85	-	-	85	13.5
1969	129	-	-	129	21.0
1968	112	-	-	112	18.8
1967	113	-	-	113	19.5
1966	117	-	-	117	20.9
1965	66	-	-	66	12.1
1964	123	-	-	123	23.4

Source: Central Bureau of Statistics: Production from Statistical Abstract; imports and exports from Statistics of the Foreign Trade of Syria; gross disappearance = production + imports + stocks - exports; per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 64.

Fresh Olives Balance Sheet; Domestic Production, Imports,
and Derived Gross and Per Capita Disappearance, 1967-77

Year	Production	Imports	Disappearance	Per Capita Disappearance
- - - - - 1000 MT - - - - -				-KG- - -
1977	29.5	-	29.5	3.68
1976	39.9	-	39.9	5.17
1975	23.7	-	23.7	3.19
1974	38.3	-	38.3	5.29
1973	19.1	-	19.1	2.73
1972	25.1	-	25.1	3.71
1971	28.2	-	28.2	4.32
1970	23.4	-	23.4	3.71
1969	28.1	-	28.1	4.58
1968	27.2	-	27.2	4.57
1967	16.9	-	16.9	2.92

Source: Central Bureau of Statistics: Production from Statistical Abstract; imports from Statistics of the Foreign Trade of Syria; gross disappearance = production + imports + stocks - exports; per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 65.

Oil Olives Balance Sheet; Domestic Production, Oil, Imports, Exports,
Stocks, and Derived Gross and Per Capita Disappearance, 1967-77

Year	Production	Oil	Imports	Exports	Gross Disappearance	Per Capita Disappearance
	- - - - - 1000 MT - - - - -				- - - - - KG - -	
1977	145.5	38.6	0.2	-	38.8	4.84
1976	193.5	55.9	0.1	-	56.0	7.26
1975	133.1	33.2	-	-	33.2	4.46
1974	176.7	44.4	1.5	-	45.9	6.34
1973	54.1	13.7	1.3	-	15.0	2.14
1972	136.3	33.4	1.0	-	34.4	5.09
1971	88.9	22.2	0.2	-	22.4	3.43
1970	62.0	15.5	-	0.4	15.1	2.39
1969	100.8	25.6	0.4	0.7	25.3	4.13
1968	84.6	22.4	0.7	0.4	22.7	3.81
1967	96.2	24.1	-	1.5	22.6	3.91

Source: Central Bureau of Statistics: Production from Statistical Abstract;
imports and exports from Statistics of the Foreign Trade of Syria;
gross disappearance = production + imports + stocks - exports;
per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 66.

Grapes Balance Sheet; Domestic Production, Imports, Exports, Stocks,
and Derived Gross and Per Capita Disappearance, 1964-77

Year	Production		Imports	Exports	Disappearance	Per Capita Disappearance	
	All	Fresh				All	Fresh
	- - - - -1000 MT - - - - -					- - - - - KG - - - - -	
1977	353	216	0.0	0.0	353.0	44.1	27.0
1976	319	195	0.0	0.0	319.0	41.3	25.2
1975	281	182	0.0	1.1	279.9	37.6	24.3
1974	250	143	0.0	0.0	250.0	34.5	19.7
1973	147	101	0.0	0.0	147.0	21.0	14.4
1972	208	116	0.0	1.8	206.3	30.5	17.0
1971	209	113	0.0	3.1	205.9	31.5	17.0
1970	206	113	-	4.3	210.3	33.3	18.3
1969	248	129	0.7	7.2	241.5	39.4	20.5
1968	213	116	0.3	2.2	211.1	35.4	19.3
1967	213	117	1.1	2.3	211.9	36.6	20.1
1966	202		0.3	4.9	197.6	35.2	
1965	206		0.5	6.8	199.7	36.7	
1964	230		0.4	4.9	225.5	42.9	

Source: Central Bureau of Statistics: Production from Statistical Abstract; imports and exports from Statistics of the Foreign Trade of Syria; gross disappearance = production + imports + stocks - exports; per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 67.

Apricots Balance Sheet; Domestic Production, Imports, Exports,
Stocks, and Derived Gross and Per Capita Disappearance, 1964-77

Year	Production	Imports	Exports	Disappearance	Per Capita Disappearance
	- - - - -1000 MT - - - - -			- - - - - KG- - -	
1977	32	0.7	-	32.0	3.99
1976	46	0.2	-	46.7	6.05
1975	53	0.4	0.7	52.5	7.06
1974	33	-	-	33.4	4.61
1973	29	0.3	0.5	28.5	4.07
1972	39	0.3	0.7	38.6	5.71
1971	31	0.5	1.5	29.8	4.57
1970	22	0.1	0.5	22.0	3.49
1969	13	1.1	0.6	12.5	2.04
1968	19	n.a.	0.3	19.8	3.32
1967	22	n.a.	n.a.		3.80
1966	15	n.a.	n.a.		2.67
1965	9	n.a.	n.a.		1.65
1964	29	n.a.	n.a.		5.51

Source: Central Bureau of Statistics: Production from Statistical Abstract; imports and exports from Statistics of the Foreign Trade of Syria, gross disappearance = production + imports + stocks - exports; per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 68.

Apples Balance Sheet; Domestic Production, Imports, Exports,
Stocks, and Derived Gross and Per Capita Disappearance, 1964-77

Year	Production	Imports	Exports	Disappearance	Per Capita Disappearance
	- - - - - 1000 MT - - - - -			- - - - - KG - - - - -	
1977	61.2	21.5	0.0	82.7	10.3
1976	70.5	20.0	0.0	90.5	11.7
1975	56.5	6.6	0.0	63.1	8.5
1974	44.3	15.8	0.0	60.1	8.3
1973	41.1	20.8	0.3	61.6	8.8
1972	42.4	20.7	0.8	62.3	9.2
1971	34.2	12.7	0.6	46.3	7.1
1970	17.7	8.1	0.6	25.2	4.0
1969	23.1	16.8	0.6	39.3	6.4
1968	25.5	22.7	0.3	47.9	8.0
1967	27.9	8.9	1.0	35.8	6.2
1966	26.1	9.0	1.1	34.0	6.1
1965	21.3	14.2	0.4	35.1	6.5
1964	24.5	11.7	2.0	34.2	6.5

Source: Central Bureau of Statistics: Production from Statistical Abstract; imports and exports from Statistics of the Foreign Trade of Syria; gross disappearance = production + imports + stocks - exports; per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 69.

Balance Sheet of All Vegetables; Domestic Production, Imports, Exports,
Stocks, and Derived Gross and Per Capita Disappearance, 1964-77

Year	Production	Imports	Stocks	Exports	Gross Disappearance	Per Capita Disappearance
	- - - - -1000 MT - - - - -				- - - - - KG - -	
1977	2426.3	74.2		9.4	2492.1	311.0
1976	2306.0	68.9		7.1	2367.8	307.0
1975	2264.4	51.8		30.2	2286.0	307.3
1974	1958.8	73.9		24.8	2007.9	277.3
1973	997.1	52.9		14.8	1035.2	148.0
1972	1535.6	23.3		39.9	1519.0	224.8
1971	1093.9	39.7		33.9	1099.7	168.5
1970	779.5	41.0		34.6	785.9	124.7
1969	991.4	21.9		47.1	966.2	157.6
1968	1210.2	26.4		44.1	1191.9	200.1
1967	1065.9	31.6		55.0	1042.5	180.3
1966	550.7	49.9		51.2	549.4	97.9
1965	765.2	29.1		36.2	758.1	139.5
1964	801.5	33.6		26.8	808.3	153.6

^aExcludes potatoes.

Source: Central Bureau of Statistics: Production from Statistical Abstract;
imports and exports from Statistics of the Foreign Trade of Syria;
gross disappearance = production + imports + stocks - exports;
per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 70.

Tomatoes Balance Sheet; Domestic Production, Imports, Exports, Stocks,
and Derived Gross and Per Capita Disappearance, 1964-77

Year	Production	Imports	Exports	Gross Disappearance	Per Capita Disappearance
	----- 1000 MT -----			----- -KG -----	
1977	453.6	35.1	0.2	488.5	61.0
1976	516.6	35.6	0.1	552.1	71.6
1975	375.4	21.8	0.8	396.4	52.3
1974	395.5	43.9	0.0	439.4	60.7
1973	269.0	28.3	0.0	297.3	42.5
1972	315.9	9.2	1.1	324.0	47.9
1971	248.4	28.3	4.9	271.8	41.6
1970	192.4	25.2	11.7	205.9	32.7
1969	192.0	9.7	18.4	183.3	29.9
1968	183.6	12.5	14.9	181.2	30.4
1967	161.6	17.7	15.8	163.5	28.3
1966	126.0	30.7	13.4	143.3	25.5
1965	135.4	10.3	7.6	138.1	25.4
1964	153.2	14.0	6.6	160.6	30.5

Source: Central Bureau of Statistics: Production from Statistical Abstract; imports and exports from Statistics of the Foreign Trade of Syria; gross disappearance = production + imports + stocks - exports; per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 71.

Watermelon Balance Sheet; Domestic Production, Imports, Exports,
Stocks, and Derived Gross and Per Capita Disappearance, 1964-77

Year	Production	Imports	Exports	Gross Disappearance	Per Capita Disappearance
- - - - -1000 MT - - - - - KG - -					
1977	716.5	0.9	3.1	714.3	89.19
1976	556.8	0.7	10.5	547.0	70.92
1975	551.6	2.1	4.9	548.8	73.78
1974	516.8	0.8	13.2	504.4	69.66
1973	100.3	1.7	0.1	101.9	14.57
1972	459.9	1.2	36.5	424.6	62.84
1971	267.9	1.1	33.6	235.4	36.07
1970	129.4	1.8	8.1	123.1	19.53
1969	370.6	1.6	79.2	293.0	47.79
1968	452.3	2.9	71.7	383.5	64.38
1967	415.8	n.a.	n.a.		
1966	104.2	n.a.	n.a.		
1965	193.3	n.a.	n.a.		
1964	264.8	n.a.	n.a.		

Source: Central Bureau of Statistics: Production from Statistical Abstract; imports and exports from Statistics of the Foreign Trade of Syria; gross disappearance = production + imports + stocks - exports; per capita disappearance = gross disappearance/population.

Appendix 1.A

Table 72.

Cattle 000 Head Balance Sheet; Slaughter
and Disappearance, 1966-77

Year	Slaughter	Disappearance Carcass, MT
1977	73	12621.7
1976	84	14523.6
1975	66	11411.4
1974	41	7088.9
1973	25	4322.5
1972	28	4841.2
1971	48	8299.2
1970	45	7780.5
1969	43	7434.7
1968	40	6916.0
1967	45	7780.5
1966	43	7434.7

Source: Statistical Abstract and Statistics
of Foreign Trade of Syria, various
issues, Central Bureau of Statistics.

Appendix 1.A

Table 73.

Balance Sheet for Sheep and Goats

Year	Slaughter		Disappearance Carcass, MT ^a
	Sheep	Goats & Kids	
	000 head		
1977	1275	84	55174
1976	1163	61	49143
1975	1038	43	42994
1974	722	60	32186
1973	1665	56	67981
1972	1496	59	61739
1971	1715	44	68985
1970	1585	58	65070
1969	1359	42	55206
1968	1273	52	52672
1967	1190	107	53664
1966	1466	118	65063
1965	1212	98	53824
1964	1156	91	51149

^aConversion live to carcass for sheep and lambs 0.5 and for goats and kids 0.42.

38/28 kg/sheep 75.8 kg/goat

Source: (Central Bureau of Statistics), Statistical Abstract and Statistics of Foreign Trade of Syria, various issues.

Appendix 1.B

FAO Elasticities, Trend Factors and Consumption Function Forms

The commodity demand projections in section 1.4 were developed by (a) projecting the increase in per capita consumption for 1985 and 2000 and then (b) multiplying the projected per capita level by projected population for 1985 and 2000. Consumption expenditure elasticities and projected total consumption expenditures for 1985 or 2000 were used in the appropriate function to project per capita consumption. The particular functions (Appendix 1.B Table 1) are associated with different types of foods (Appendix 1.B Table 2). For example, elasticities for several meat items, eggs, fish, skimmed milk, cheese, butter, and animal fats and oils were estimated from logarithmic function (1) in Appendix 1.B Table 1 providing a constant elasticity coefficient. That is, a one percent increase in expenditures was assumed to result in a constant percentage increase in consumption per capita at any income level. In contrast, elasticities become increasingly more inelastic as consumption and expenditures increase for the other three functions in Appendix 1.B Table 1. The most extreme case is function number (4), log-log-inverse, where a saturation level is reached at some level of expenditure and then consumption turns downward as income continues to rise. This function was used only for wheat and the "all cereals" category in the SAR projections. Other commodities' consumption functions are fitted with functions number (2) and number (3) where the rate of consumption declines as income increases but a saturation point is not reached.

The actual projected changes in per capita consumption levels are obtained from the relations under the "Increase in Per Capita Demand" heading on the right-hand-side of Appendix 1.B Table 1. Trend adjustments are made after the 1985 projection is made and then again for the 2000 projection if required. Note the trend factors in Appendix 1.B, Table 2 where, for example, poultry meat consumption was projected to increase at an annual compound growth rate of 1.0 percent between 1975 and 1985 in addition to the effect of increased expenditures expressed through relation 1.B Appendix 1.B Table 1. Then, poultry meat consumption declines at 0.9 percent annually, in addition to expenditure effects, from 1985 to 2000.

FAO developed the elasticities used for their Syria projections from world-wide data on countries in a similar stage of development. Future household consumption surveys in Syria could be structured to obtain data necessary to provide elasticities of consumption specifically for Syria.

Appendix 1.B Table 1. Nature of the Demand Functions Selected for the Projections

Function	Elasticity coefficient η	Increase in Per Caput Demand
A		B
(1) Logarithmic $\log_e y = a + b \log_e x$	b	$\log_e \frac{y^1}{y} = \eta \log_e \frac{x^1}{x}$
(2) Semi-logarithmic $y = a + b \log_e x$	$\frac{b}{y}$	$\frac{y^1}{y} - 1 = 2.3026 \eta \log_{10} \frac{x^1}{x}$
(3) Log-inverse $\log_e y = a - \frac{b}{x}$	$\frac{b}{x}$	$\log_{10} \frac{y^1}{y} = 0.4343 \eta \left(1 - \frac{x}{x^1}\right)$
(4) Log-log-inverse $\log_e y = a - \frac{b}{x} - c \log_e x$	$\frac{b}{x} - c$	$\log_{10} \frac{y^1}{y} = \frac{\eta}{1 - \frac{x}{x^1}} \left[0.4343 \left(1 - \frac{x}{x^1}\right) - \frac{x}{x^1} \log_{10} \frac{x^1}{x} \right]$

x , y and η refer respectively to per caput Gross Domestic Product of Private Consumption Expenditure, per caput demand and elasticity coefficient at the base period; x^1 and y^1 refer to the corresponding values at the end of the projected period. In function (4) there is an additional parameter, which is represented by x_M , corresponding to the value of GDP or Private Consumption Expenditure, for which the maximum level of consumption is reached. The coefficient 0.4343 (or its inverse, 2.3026) corresponds to the transformation of decimal into natural logarithms.

Source: FAO, Agricultural Commodities--Projections for 1975 and 1985, Vol. II, Rome 1967, p. 34.

Appendix 1.B Table 2

FAO Elasticities and Trend Factors Used to Project Demand
for Syria to 1985 and 2000

No.	Commodity	Expenditure Elasticity	Function No. ^a	Trend Factors	
				75-85 Percent	85-2000 Annually
1.	Cereals	.21	4		
2.	Wheat	.20	4		
3.	Rice Paddy	.40	2		
4.	Maize	.10	2		
5.	Barley	.00	-	-1.9	-0.6
6.	Oats	NA	NA		
7.	Millet-Sorghum	.00	-		
8.	Other Cereals	NA	NA		
9.	Roots & Tubes	.30	2		
10.	Potatoes	.30	2		
11.	Sweet Potatoes	NA	NA		
12.	Cassava	NA	NA		
13.	Yams	NA	NA		
14.	Plantains	NA	NA		
15.	Other Roots	NA	NA		
16.	Sugar Products	.46	3	0.2	
17.	Sugar Cent Raw	.45	3	0.2	
18.	Sugar Non-Cent	NA	NA		
19.	Other Sugars	.70	2		
20.	Pulses-Nuts-Seed	.47	2	-0.6	-0.6
21.	Pulses	.40	2	-1.2	-1.2
22.	Tree Nuts	.60	2		
23.	Oil Crops	.50	2		
24.	Vegetables	.50	3		
25.	Fruits	.42	3	0.2	-0.1

Appendix 1.B Table 2 Continued.

No.	Commodity	Expenditure Elasticity	Function No. ^a	Trend Factors	
				75-85 Percent	85-2000 Annually
26.	Oranges-Tangerines	.60	2	2.8	-1.5
27.	Lemons-Limes	.40	2	-0.7	-0.9
28.	Other Citrus	NA	NA		
29.	Bananas	.40	2		
30.	Other Fruits	.40	3		
31.	Meat and Offals	1.06	2	0.3	-0.8
32.	Beef and Veal	1.20	1		
33.	Mutton-Lamb	.90	2		-1.0
34.	Pig Meat	NA	NA		
35.	Poultry Meat	1.50	1	1.0	-0.9
36.	Other Meat	.60	1		
37.	Offals	.60	1		
38.	Eggs	1.20	1		-1.1
39.	Fish	.99	1		
40.	Finfish Fr-Fz	.90	1		
41.	Finfish Processed	1.10	1		
42.	Crust-Mollusc	NA	NA		
43.	Other Aq an Pl	NA	NA		
44.	Whole Milk	1.00	2		
45.	Skimmed Milk	.80	1		
46.	Cheese	.80	1		
47.	Fats and Oils	.42	3		0.5
48.	Butter	.50	1		
49.	Vegetable Oils	.40	3		0.6
50.	Animal Oil Fat	.40	1		

Appendix 1.B Table 2 Continued.

No.	Commodity	Expenditure Elasticity	Functions No. ^a	Trend Factors	
				75-85 Percent	85-2000 Annually
51.	Spices	.60	2		
52.	Stimulants	.54	2	-0.4	
53.	Cocoa Beans	1.00	2		
54.	Coffee	.50	2		
55.	Tea	.50	2	-0.7	
56.	Other Stimulants	NA	NA		
57.	Miscellaneous Food	NA	NA		
58.	Alcoholic Beverage	1.00	2		
59.	Wine	1.20	2		
60.	Beer	1.00	2		
61.	Other Alcoholic	1.00	2		
62.	Non-Alcoholic Beverage	NA	NA		

^a1 logarithmic, 2 semi-log, 3 log-inverse, 4 log-log-inverse

Source: Unpublished FAO demand projections for Syria to 1985 and 2000 as of 1978.

Syria: Agricultural Sector Assessment
Volume 4: Agricultural Marketing Annex

CHAPTER II
CROPS MARKETING

By

Donald E. Farris and Ray V. Billingsley

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PREFACE

Sincere appreciation is expressed for the cooperation of the many people in the Syrian Agricultural Marketing System who provided information for this assessment. Appreciation is also expressed to those who accompanied us on field trips or served as counterparts in gathering information and conducting interviews, especially Dr. Fouad Kh. Numer, and Mr. Mahmoud Al-Kadi, of MAAR, Mr. Mohomud Salami and Mr. Marwan Al-Mudawar of MSIT, Mr. Badawi Kaanan, GOTPC, Mr. Ratib Jaber, CMO, and Mr. Fayez Al Hames, GOFI.

2.0 SUMMARY OF ASSESSMENT AND RECOMMENDATIONS

A brief summary is provided here to give the reader a quick look at the highlights of the recommendations for commodity marketing (both volumes II and III). The reader is encouraged to examine the other sections for more details and for a better understanding of the current marketing systems, and the reasons for these assessments and recommendations.

The Syrian Arab Republic is a mixed socialist-capitalist economy, and the role of government in marketing involves setting prices at all levels and owning and operating a substantial part of the agricultural and food marketing system. Currently marketing is a government monopoly for industrial crops, but the private sector operates substantial parts of marketing perishable food crops, meat, poultry and eggs. Farming and retailing are mainly privately operated. Practically all of the recent new investment in marketing is government owned. The team saw little private investment in marketing facilities except poultry processing. Current government policy is to increase its role in marketing. This policy has limited, and in some cases, eliminated incentives for the private sector to invest capital into fixed facilities that would improve marketing. There has been little progress in food wholesaling and retailing in a decade except for a limited amount of government activities.

This study has attempted to assess agricultural marketing by all appropriate criteria available, however, most assessment had to be based on the teams experience and judgement rather than empirical evaluation. The framework used in the field of Industrial Organization was a basis of analysis where possible.

Performance ranged from very good in cotton marketing (a government monopoly) and in poultry processing and marketing (largely privately owned and operated) to poor in dairy processing and in food wholesaling and retailing compared to other countries and considering the level of performance possible from known technology and marketing methods. Much of the recent progress in marketing has been in improved roads and trucks. Improved storage, processing and refrigeration has also been the result of government investment in new facilities.

Many of the problems in marketing stem from some price controls, lack of investment in modern facilities, lack of experience of managers of publicly owned operations; and from risks and uncertainties of a country in transition from less to more public control. There are specific problems of marketing management and operations, however, that can be substantially improved in both public and private operations. Basic to understanding marketing and improving it is the understanding of its role in an economy. Marketing creates time, form and space utility, and as such creates value to consumers. For products to have the highest value they must be delivered at a time and in the desired form and at a convenient place. This requires a system with effective rules of commerce, with flexibility to adjust to changing conditions and with clear lines of authority and responsibility. Furthermore, it is helpful to understand those marketing activities where government is required to achieve efficiency and those where private control is more efficient. In areas where only one or a very few firms can operate efficiently higher performance toward achieving society's goals may be achieved by government operation, by government being a competitor, or by private operation and government control of prices or even by producer or consumer cooperatives.

On the other hand, where a fairly large number of firms can compete in the business the industry is likely to perform better in the private sector with government providing and enforcing the rules of competition and allowing the market to set prices. In most small countries, regardless of whether publicly or privately operated, prices should be kept generally in line with international markets by maintaining low trade restrictions.

Recommendations

1. Uncertainty and the policy of increased public control has stagnated the food wholesaling and retailing business which is still mostly private. Suggested policies to increase performance in this area are:
 - A. Publish a clear policy that food retailing is to remain primarily in the private sector and encourage investments with government loans and assistance for building new facilities. Aid transition of excess labor into more productive employment.
 - B. Government plan with the private sector and build modern facilities for storage, wholesaling, grading and sorting. These could be leased to private operators on a competitive bid basis.
 - C. Limit price control at retail to a minimum number of basic food items. There is adequate competition at the retail level to protect the interest of consumers.
2. Fresh fruits and vegetables marketing has performed reasonably well and marketing margins have remained relatively low. The same recommendations as in (1) above apply, in addition, it appears that there is no need for price controls at any level on these products. There is sufficient competition to protect producers and consumers. Government efforts could best be directed at developing grades and standards, maintaining competition, fostering desirable trading practices and dissemination of market news. A project to cooperate with other Arab countries to develop a uniform grades and standards for fruits and vegetables would greatly facilitate trade.
3. Cereals marketing is dominated by government with both producer and consumer prices substantially subsidized. This is a political decision, but it reduces efficiency in marketing and reduced subsidies would reduce the economic distortions in marketing. In terms of cereals marketing operations handling efficiency is poor because of lack of bulk handling. Local bulk storage such as metal and/or concrete bins to start the bulk handling process and reduce the peak demands on truck transportation is needed. A detailed study is needed to estimate the number, size and location of this local storage.
4. Commercial food processing is mostly operated by government. Most plants appeared to be well operated where decisions were under control of the local manager, but lack of flexibility in employment, procurement and

marketing policies resulted in inefficiencies and idle capacity. Management programs to increase training, delegate authority, improve accountability and evaluate performance are badly needed. As incomes increase and more women enter the work force much more food processing capacity will be needed.

Overall, food processing lacks the facilities, capacity and technology to produce the necessary quantity and variety of products for the country and many products are imported. Economic development can be advanced by expanding processing facilities and new plants are under construction. In some cases it would appear that joint ventures with international companies would be desirable to acquire the necessary investment, technology and management for some products not currently produced in the country. In the meantime, trade barriers and restrictions are generally too severe. A comprehensive study of the market for processed food and the feasibility of serving the market with domestic production and processing is needed.

5. Cotton marketing is an efficient and well performing government monopoly. The equity dimension of performance could be improved by paying producers a price nearer world market levels. Cotton is harvested by hand and there is opportunity to improve labor productivity by moving toward machine harvesting. Most of the changes must come at the farm level, however, close coordination with The Cotton Marketing Organization (CMO) is needed to handle the machine harvested cotton. Productivity in CMO could be increased by the use of a mini-computer to handle the accounting work and to aid financial and operational control and evaluation.

Evidence of the favorable performance of CMO is that marketing costs are apparently equal to or below those of the U.S. (This may be partially due to a lower wage rate). In addition, the procurement and sales program are based on pricing on the basis of quality. Furthermore, the product delivered to buyers is of reliable quality, they know the kind of product they are purchasing and can depend on it being precisely as specified. As a result, it brings at least the average price of cotton of like quality and staple length in world markets. Both buyers and producers receive prompt and fair treatment and service. The procurement, ginning, quality determination and sales appear to be efficiently organized and operated.

6. Livestock market facilities in Syria consist mostly of a place where sellers can bring livestock for sale. The largest market in the country at Aleppo does not have pens for holding individual flocks or loading and unloading facilities. The basic facilities for a modern well organized livestock market should be provided in each place where substantial trading occurs. A study to provide a basic design and organization for a model market would be a good investment. If this pattern proved useful, other markets could then be designed using this model.
7. Syria is in a strategic position in sheep marketing in the Middle East. Demand for meat will grow rapidly in the future. There was surprising little market organization and market coordination in livestock and

meat marketing, processing and distribution. A sheep Marketing Board or a Livestock-Meat Marketing Board could be established to coordinate, establish policies, and produce market information that would be useful in improving performance in livestock meat marketing. Future demands in the Middle East will provide great opportunities for Syria to serve as a fattening and trade center for sheep if the industry is designed to take advantage of these opportunities.

8. Despite only two modern livestock slaughter plants in Syria, these plants have underutilized capacity; and the sanitation and quality they are designed to produce is not being fully utilized because of management and administrative problems. A board with authority to study and carry out policies to improve performance of these systems should pay large dividends.
9. Butcher shops and meat stores are generally very inefficient with low labor productivity mainly because they lack adequate space and facilities. Because the lack of incentive for private investment, government could design and build modern facilities and lease these to private operators on a competitive bid basis. There is adequate skills and competition in the private sector. Government's role should be to set grades and standards and enforce them and allow the private sector the flexibility to serve customers.
10. Poultry meat and egg production and marketing is among the best performing industries in the agriculture sector. Although government is a significant factor in the industry, the private sector accounts for the largest volume. Although modernization started late compared to most countries, by 1979 sufficient progress was made for the country to become essentially self sufficient in poultry meat and eggs. There is sufficient competition in these industries plus the government being an important producer and marketer makes price controls unnecessary. Additional expansion of government facilities appear to be unnecessary.
11. Dairy marketing in Syria is mainly in the hands of small private producers and operators despite the fact that the government operates the three modern plants all of which are underutilized due to administrative management, and marketing problems. Syria is a dairy products deficit country and this is likely to continue as it does not have the necessary production resources to economically produce all of its needs. This is such an important food group required to produce good nutrition, that a national study is needed to examine the total dairy marketing, trade and price policies to provide improved performance of the national dairy industry.
12. Finally, international trade is often inefficient because of rigid regulations, government monopoly on some trade items and the necessity to get specific trade permits. In short, both public and private companies should be allowed fairly easy access to international markets. This can be designed to maintain pressure on the entire marketing system to be efficient and respond to the changing needs of the society.

2.1 COMMODITY MARKETING SYSTEMS

Agricultural commodity marketing systems in the Syrian Arab Republic range all the way from a government monopoly for industrial crops like tobacco, cotton, and sugar to private sector marketing of crops like olives and grapes. Most of the others are somewhere in between, with some indications that the government is increasing its role in marketing and may eventually dominate all commodities and functions.

The current price policy is for the government to establish prices at each point in the exchange process from farmer all the way to the consumer. There are a few exceptions such as green vegetables that are priced in the open market and there are commodities for which frequent changes are made in the official prices like the major fruits and vegetables where a local committee may change the price as often as twice per week. Then there are products like cereals and industrial crops where a High Commission sets the basic price once a year and it is not changed except for fixed premiums and discounts for time of delivery, quality, and other conditions.

The systems have commodities like wheat that are subsidized at the farm level with prices above the world market and also subsidized at the consumer level with flour and bread substantially below costs. On the other hand, there are commodities like cotton and tobacco where the monopoly marketing systems extracts substantial tax and/or profits for the government.

As one might expect from the foregoing it is difficult to generalize about the basic legal and economic framework shaping agricultural marketing and international trade in these products except to note that it appears to be national policy to control as many prices as possible and for the Public Sector to operate as much of the marketing system as possible. The private sector still operates practically all of the food retailing although most of the new investment in facilities appears to be government operations. Fifty-five government operated shopping centers are planned for the country. Some are already in operation. New government owned fruit and vegetable stores are being constructed, and government owned supermarkets include food departments. Government operations dominate processing, international trade, and for some commodities, the wholesale and distribution functions.

Data on the public sector's role in marketing is incomplete and conflicting, but estimates are presented in Table 2.1.1 on the extent of Public Sector operations in marketing. Practically all farming and retailing is in the private sector, but there are government operations in each of these also.

From seminar papers and discussions on the topic of Agricultural Issues, February 1977 in which Syrian officials participated, there were conflicting views expressed on the role of private and public sector. From these discussions it appears that the value of the private sector is recognized, but there is a feeling that "middle men" cannot be allowed to

Table Estimated Share of Commodity handled by the Private and Public
2.1.1 Sectors In Syria^{a/}

Commodity	Private	Public	Source
	<u>Percent of Total^{b/}</u>		
Canning fruits and vegetables, 1976	n.a.	4.4	Akhrass
Wine, 1976	n.a.	3.2	Akhrass
Shelling peanuts, 1976	n.a.	33.7	Akhrass
Drying onions, 1976	n.a.	6.6	Akhrass
Sterilized milk, 1976	n.a.	1.4	Akhrass
Sugar refining, 1976	n.a.	100.0	Akhrass
Wheat, 1976	n.a.	38.0	Akhrass
	<u>Percent of Commercial Sales</u>		
Canning Fruit & Veg., 1977	16.4	83.6	CBS
Olive Oil, 1977	100.0	0.0	CBS
Vegetable Oil, 1977	0.0	100.0	CBS
Margarine, 1977	18.0	82.0	CBS
Bisquits, 1977	10.0	90.0	CBS
Macaroni, 1977	100.0	0.0	CBS
Fresh fruits and vegetables, 1979	95	5	Estimate of official
Cotton, 1979	0	100	"
Tobacco, 1979	0	100	"
Dairy Products, 1979	95	5	"
Beef, 1979	100	0	"
Sheep meat, 1979	75	25 ^{c/}	"
Chicken meat, 1979	72	28	"
Eggs, 1979	91	9	"

^{a/} The retail function for food is nearly all private, there are a few government owned retail stores that sell food items.

^{b/} For 1976, data is from Hisham Akhrass, Seminar paper on Agricultural Issues, February, 1977, these estimates are share of total agricultural production.

^{c/} In Damascus the government markets about 50 percent of the sheep meat at the slaughter-wholesale level.

For 1977, data are from Central Bureau of Statistics, Agricultural Abstract, 1978, and relate only to commercial sales, they do not include production for home consumption.

For 1979, data are estimates obtained in interviews with government officials operating these activities and relate to commercial sales only.

operate without controls that protect producers and consumers from exploitation (Al-Shaar, et. al., 1977). Some statements implied replacing "middle men" with government companies.

There appears to be no organized credit system or program to facilitate loans to merchants, traders, or distributors. There is an Agricultural Cooperative Bank to finance farmers and a source of financing for housing, apartments and factories, but "middle men" have to arrange their financing in a more informal manner, either from his own funds, his supplier or from an individual. There appears to be no standard practice of short-term inventory financing of merchants by commercial banks. Although one official insisted that loans are available to merchants from Syrian Banks, merchants contacted said that bank loans were not generally used to finance inventory.

As one might expect from the previous description of the wide variation in legal and economic conditions under which marketing firms operate, overall market performance varies from good to poor. Basic problems are low labor productivity, lack of flexibility in management, generally little new capital investment in the private sector, limited supplies, variety, and sizes of processed foods.

Comparisons with neighboring countries were not attempted but the impression is that overall development and performance of the marketing system lags behind that of Jordan and Lebanon, and there are many opportunities for improvement. Modern methods of retailing and wholesaling have not progressed very far in Syria in 1979. Most retail shops are very small with low volume, and the distribution systems to them is the jobber-peddler type required to service these kinds of stores. Commodity marketing as opposed to finished product marketing does often employ modern technology and modern systems, however, little attention has been paid to labor productivity and bulk handling has not been adopted in some of the obvious applications such as handling wheat and flour.

2.1.1 Functions of a Marketing System

The role of a marketing system is not as easily understood or described as is a production system. However, when it fails to operate due to wars, strikes or boycotts its value can be better understood. For example, cotton at Aleppo has little value unless it can be moved to textile mills, transformed into clothes and made available to some one to purchase and wear. Likewise, bananas in Central America are of no value to Syrians unless they are transported and ripened; and their value is even enhanced if they are available within a short walking distance of one's home. In both of these examples, more than half of the value to consumers was created by the marketing system. These marketing margins to the extent they represent cost and reasonable profits are legitimate charges for services rendered and cannot be avoided if the product is to be delivered at the proper time and place in the desired form.

To restate this marketing function in general terms, the role of marketing is to create time, form and space utility. In terms of agriculture commodities, the purpose of the marketing system is to utilize raw agricultural products in satisfying needs of consumers for quality, variety, convenience in a form, at a time and place desired and for which they are willing to pay the necessary costs. In the United States, because of the long distance products are moved, and because income levels permit people to demand packaging, convenience and in some cases the product already cooked; marketing costs for food average about 60 percent of the total retail costs. Average Syrian marketing costs were not available to the marketing team, but they are certainly lower than in the U.S. because fewer marketing and processing services are performed and wage rates are lower.

Consumer demands for food are more or less regular and a food marketing system must have the flexibility to procure food where and when it is produced because agriculture production is annual, seasonal, cyclical and subject to great variability. Syria with its erratic dry climate must be organized for storage and to take advantage of trade to meet food needs. It should also recognize the lack of a large domestic market for some products and look to substantial trade with neighboring countries and the world markets for specialized and low volume products, if it wishes to achieve the maximum levels of living. Likewise, it must look to international sales for some products in which it has a competitive advantage as it has long done with cotton.

There are many ways to operate a marketing system and performance depends on the quality of management, facilities, transportation and communication. It also depends on the quality of the legal and economic environment which shape the rules of operation, the feasibility of effective contracts and the degree to which it fosters investment.

Almost every country has some distinctive features in its marketing system as there are many alternative ways to shape a marketing system.

Some of these are:

1. Open competition
2. Price controls and/or margin controls
3. Subsidies and/or taxes
4. Government operation
5. Franchised monopoly
6. Cooperatives
7. Expose the government and/or the private sector to foreign competition with low import tariffs (perhaps a maximum of 15 percent) and no volume controls
8. A mixture of the above

2.1.2 The Pricing System

The role of prices in any economic system is to serve as communication links between producers and consumers. The prices of inputs communicates to farmers which inputs are relatively expensive and which are cheap. In addition, the prices for products communicates to producers which products consumers want most and which products the producers might cut back.

2.1.3 Current Marketing Policy

The goals of the current policy regarding the marketing of agricultural products may be specified as follows: (1) the protection of both producer and consumer against the domination of individual intermediaries which may occur in an uncontrolled marketing system (2) the provision of adequate economic incentives to encourage production and the crop composition specified by the plan, (3) supplying the institutions of the public sector responsible for trade and industrialization with the needed quantity of agricultural goods according to the plan, (4) supplying food stuff to consumers at prices which, as far as possible, isolate them from inflation, (5) the gradual substitution of cooperative marketing and production for individual control. This policy is a political goal as well as a means for improving production and marketing efficiency.

In order to achieve these goals, the SARG has implemented a number of marketing policies for agricultural products. (1) The role of the private trader in the marketing of crops has been lessened while at the same time reinforcing the public sector, (2) Encouraged the production of crops to be used for essential foodstuff, exports, and for industrial production, according to the plan. Specialized agencies have been set up for this purpose and now control several of the marketing stages, including industrial processing, of such crops as wheat, barley, lentiles, cotton, tobacco, sugarbeets and peanuts. The areas planted to these crops amounts to 75 percent of the total irrigated hectares in the country and around 90 percent of the rainfed area. The State has also started to market basic inputs such as fertilizer, machinery, fuel and most of the insecticides and improved seeds. (3) The public sector has entered into the marketing of essential foodstuffs such as meat, dairy products, vegetables and fruits. However, these activities, as in the past are still mostly in the private sector. (4) Established a cooperative sector, represented by the Peasant Union for the purpose of giving it more marketing responsibilities which would involve more stages of the marketing process. This would include handling the product from the farmers field to the wholesaler and in some cases engaging in processing and/or delivering to the consumer or retail outlet. This depends on the product, the nature of the marketing channel, and the ability of the Peasant Union to undertake such responsibility. (5) Allowing the private sector, represented primarily by the small retailers, to market the remaining agricultural products, and especially, those products intended for direct consumption.

2.1.4 Evaluation of Performance

Performance of a marketing system is evaluated in a market structure, market conduct, market performance framework. That is, market structure, the market situation that sets the basis for competition or other rules of operating such as degree of concentration, ease of entry, economies to scale, etc. and it shapes market conduct. Market conduct relates to output and price policies and other trade practices. A key feature of market conduct in Syria is that a government committee sets most of the prices and the five year plan sets more of the output policies. Market performance is evaluated in terms of the extent to which it achieves societies goals given the resource base.

Dimensions of performance are equity, progressiveness, efficiency and the extent to which the industry contributes to full employment of the Economy's resources. Precise measurement of these dimensions of performance is not possible in any country, but this is not necessary. What is useful is to be able to qualitatively identify areas of poor, average or good performance and indicate areas for improvement.

Some of the measures which reflect performance is labor and capital productivity, profit rates, relative costs, prices and margins. In addition, degree of innovation and adoption of cost reducing methods and extent of responsiveness to consumer demands are also measures of performance.

An example of good performance in the Syrian Economy is the poultry and egg industries which have expanded rapidly and made products available at reasonable prices compared to those available in other countries. Marketing margins have been relatively low. An example of poor performance is the excess competition in food retailing with low labor productivity (lack of progressiveness) and low returns to labor (equity). Part of this problem apparently stems from lack of incentives for private investment and lack of pull from other sectors in attracting some of the labor out of retailing. Wholesale - retail margins varied from 3 to 20 percent for most food items in Damascus and Aleppo in 1977. Most of the range was 12 to 18 percent which is lower than most developed countries probably due mainly to differences in wages in retailing and differences in services performed (Tables 2.1.2 and 2.1.3).

2.1.5 Legal and Economic Environment for Marketing in Syria

In the short time available to complete this study it was not possible to understand all of the forces that shape the marketing system in SAR. Listed below are the more important legal and economic conditions shaping commodity marketing structure and market conduct.

(1) There has been a long process of increased nationalization of finance, industry and business in Syria. Only farming and retailing have a relatively small amount of government operations. As a result private capital is attracted mostly to safer investments such as apartments, small shops or investment outside the country.

Table 2.1.2

Wholesale and Retail Prices, and Price Spreads of Selected Food Items in Damascus and Aleppo, 1977 Annual Average.

Item	Damascus			Aleppo		
	Wholesale (Syrian Piaster/Kg)	Retail	Retail-Whlse Price Spread (%)	Wholesale (Syrian piaster/kg)	Retail	Retail-Whlse Price Spread (%)
Fresh milk	115	130	12	120	132	9
Yoghurt fresh	133	145	8	135	165	18
Yoghurt Conc.	448	550	19	318	383	17
Butter, local	1016	1200	15	933	1000	7
Cheese, white local	590	700	15	650	750	13
Cheese	435	550	21	434	463	6
Dates, compressed	120	150	20	115	142	19
Beef, canned	260	285	9	260	285	9
Tomato sauce	290	338	14	290	339	19
Apricot jam	423	450	6	405	450	9
Wine, sweet, local (btl)	382	440	13	348	410	15
Beer, chark (btl.)	200	225	11	200	225	11
Beverages, Cartonated (btl.)	30	35	14	30	35	14
Cigarettes, Orient (box)	117	125	6	117	125	6
Cigarettes, Al-hamrra (box)	141	150	6	141	150	6
Cigarettes, Imported (box)	235	250	6	235	250	6
Sugar, powdered (Supply voucher)	82	85	4	82	85	4
(Market price)	292	300	3	292	300	3
Nescafe	8500	9500	11	8500	9500	11
Tea, best quality	926	1175	11	860	1050	18
Olives, balabi dan	396	451	12	370	450	18

Source: Central Bureau of Statistics, Statistical Abstract, 1978 PP409-421

Table 2.1.3 Wholesale and Retail Prices, and Gross Margin of Selected Food Items in Damascus and Aleppo, 1977 Annual Average

Item	Damascus		a/ Retail-Whlse Price Spread (%)	Aleppo		Retail-Whlse Price Spread (%)
	Wholesale (Syrian Piaster/Kg)	Retail		Wholesale (Syrian piaster/kg)	Retail	
Imported rice						
(Supply voucher)	76	80	5	76	80	5
(Market price)	141	145	3	141	145	3
Flour (excel)	100	125	20	100	125	20
Burghol, coarse	117	133	12	120	133	10
Macaroni	100	120	17	100	120	17
Broadbeans	152	166	8	135	165	18
Chick peas	185	227	18	178	213	16
Lentils, red (1st grad)	140	160	12	132	152	13
Lentils, red (crushed)	172	185	7	150	172	13
Beans dry	177	217	18	173	197	12
Sheep's liver	1592	1842	14	1275	1479	14
Live poultry	663	712	7	670	710	6
Fish, Garb	500	529	5	432	510	15
Fish, frozen	575	637	10	350	402	13
Eggs (ten)	319	359	12	292	333	12
Olive oil, local	670	782	14	654	775	16
Cotton seed oil						
(Supply voucher)	148	160	7	148	160	7
(Market price)	275	290	5	275	290	5
Ghee, (Samn)	2670	2815	5	2653	2775	4
Ghee, (vegetable)	705	750	6	690	775	11

Source: Central Bureau of Statistics, Statistical Abstract 1978, PP 400-407

(2) Prices are regulated at all levels, but not at the farm level in some cases. Because sheep prices are not regulated, but wholesale and retail prices are, the General Organization for Food Industry's (GOFI) meat company has lost money because the High Council will not allow them to raise meat prices fast enough to offset the increases in the price of raw product.

(3) Business entry and exit conditions for most business is controlled by government. In some areas there seems to be no problem to get a permit to operate, but in others where government has substantial activity, the government organization that a private business would be competing against must approve the permit and the need justification. As a result the government is now the only source of new investment in marketing for most commodities. Poultry seems to be an exception.

(4) Prices fixed by the government and regulations prohibiting some products to be moved without permits and other laws inconsistent with economics give people substantial incentives to violate the laws. As a result much commerce operates by exception to some regulations that are not enforced and some is a result of illegal smuggling.

(5) The Syrian economic system is a mixed socialist and capitalist economy which is guided by a series of five year plans where output by industries and sectors is centrally planned, including farm output. Farm plans and rotations are required to be consistent with the national plan.

Most economies from time to time adjust the degree of social and market control in attempting to accomplish its goals and objectives. It is the opinion of the commodity marketing team that overall performance of the SAR marketing system would improve if clear guides were established to encourage private investment in marketing and gear the system to be more responsive to economic incentives. This can be done at the same time equity objectives are being pursued by having a proper mix of production controls and price incentives.

2.1.6 Transportation and Communications

Efficient marketing requires efficient transportation and communications. Trucks in Syria are modern and relatively efficient considering the roads. Some primary roads are good. Improvement of roads to facilitate commerce benefits the entire society. Approximately one half of the trucks in Syria are privately owned and the other half publicly owned. Transportation service was considered good by most people interviewed in marketing companies, although there has been some shortages during peak harvest time. The rail system is poorly designed to serve the entire country. Studies and projects are underway to improve this situation.

Telephone service is poor. Modernization and expansion of facilities would greatly facilitate commodity marketing as well as benefiting the entire society. Telex and cable services are good and must be used instead of the phone in many cases.

2.1.7 Marketing Facilities

Marketing facilities are discussed in more detail under each commodity section. The highlights are that SARG is adding substantially to facilities in flour milling, cereals storage, baking, fruit and vegetable canning, cotton seed oil processing and fresh fruit and vegetable grading and marketing. Additional storage facilities are needed at assembly points so that cereals can be handled in bulk after being purchased from farmers. Government apparently cannot begin to meet the needs of retail facilities which currently are small, old and generally have low labor productivity. Larger facilities could release a lot of under-employed labor for more productive jobs.

2.1.8 Marketing Institutions

Credit institutions are not designed to serve the needs of the private sector in marketing. Most have to depend on suppliers, their own funds or an individual. Market information systems have been neglected in some commodities. The Cotton Marketing Organization stays in close touch with international markets, but some of the other government companies did not appear to emphasize this much. It is assumed that domestic markets are "captive" markets. There seemed to be inadequate feedback from suppliers and customers. Apparently there are no market tests done prior to producing a new product like European bread.

Grades and standards are used extensively in cotton, but are absent in meat. New standards for fresh fruits and vegetables for Arab countries are needed.

Degree of competition varies from state monopoly in some commodity marketing to excess competition in retailing. In practically all areas government operations either dominate or effectively compete with the private sector. In poultry and eggs the private sector has performed extremely well and brought the country to self sufficiency in poultry meat and eggs. Currently, with government administered prices and government production and marketing companies, there is plenty of competition to protect the interest of producers and consumers. Exceptions are in industries that are government monopolies, where there is often no effective method to keep the monopoly efficient and responsive to the needs of producers and consumers except through the political system. As a result, only the major problems get attention. In some industries where producer prices or consumer prices are subsidized by the government, or where government company's costs are partially paid by SARG there is excess competition and little or no new investment on the part of private operators.

Trade barriers are extremely variable. In fresh fruits and vegetables imports from Jordan and Lebanon are relatively free. Imports from outside Arab countries generally have a tariff of 45 to 55 percent. Government organizations monopolize trade in some areas and then tariffs are not needed to limit trade or raise revenue. The main activity controlling trade is decisions of government to buy, or not to buy, or to issue, or not to issue, a permit to the private sector to trade a product. More uniform rules with

no quantity restrictions and low import tariffs would improve the well being of the Syrian consumer and provide competitive pressure on government and private operations to keep prices in line with world markets and maintain efficiency.

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2.2 FRESH FRUIT AND VEGETABLE MARKETING

Syria's fresh fruit and vegetable industry is the fastest growing sub-sector in Agriculture with price increases also being the highest. Since 1962 prices have increased about four times. Production and trade have had substantial increases reflecting the rapid population and income growth. The Eastern Mediterranean Area in which Syria is located has abundant supplies of high quality fruits and vegetables. The wide range of altitude, rainfall and climate provide conditions for a wide variety of products with many off-season products available from neighboring countries.

While Syria produces some or most items it consumes, it imports substantial quantities of potatoes, citrus, bananas and apples. In 1977 all forms of vegetables imported were valued at S.L. 46.8 million, citrus fruits 69.6, tropical fruits 47.2 and other fruits 53.2, for a total of S.L. 217 million. Exports of fruits and vegetables were small, mainly potatoes, tomatoes, melons and figs.

Clearly the fruit and vegetable industry had been quite responsive to consumer demands. A wide variety of products are available throughout the country and may be obtained in central markets, small shops, street corners, roadsides or delivered to homes. Production is almost entirely by private farmers and marketing is mostly by private small business with very low investments. Until 1977 about the only government involvement in the industry was in the price system. In each Mohafaza, a government committee establishes an official price on most items subject to change twice a week. A price sheet is published and government inspectors check for compliance throughout the marketing system. Prices were not established on green vegetables. Once the producers or wholesale price level is established the following mark-ups are the guides for settling other prices:

Wholesaler	5-7%
Jobber (half-wholesaler)	5%
Retailer	20%

This results in a 30-35 percent markup over the producer price once it is delivered to the central market. The total marketing margin probably averages over 40 percent when all transportation and waste is considered. On imported items the total marketing margin is higher, of course, but the same guides apply once the product arrives at the Central market.

2.2.1 Facilities

Beginning June, 1977, the government established a national marketing company, called the General Company of Fruits and Vegetables, with objectives to operate at all levels in the Marketing System. In mid 1979 the company had 750 employees, access to 15 long haul refrigerated trucks, and was either operating in most areas of the country or had facilities under construction. They plan grading and sorting centers in the larger Mohafazats. A large central market is under construction in Damascus with ten wholesale refrigerated units completed and ten under construction. The Government Company will operate the Market, leasing some of the facilities to private operators. Plans are for this to be the Central Wholesale Market for Damascus with the old Damascus Central Market restricted to jobbers (half-wholesalers) and retailers. Currently the Damascus Market is occupied by private wholesalers, jobbers and retailers.

The Government is building 55 retail centers throughout the country. Most of them in Aleppo and Damascus. Eight government retail produce markets were already in operation in Damascus. Outside of the Central Market, these were the largest retail produce establishments in terms of building space. Most private retail outlets were very small, usually one man operation.

2.2.2 Market Structure and Market Conduct

The nature of market performance can usually be predicted by the conditions described as market structure and market conduct. In fresh fruit and vegetable marketing in Syria, the dimensions of market structure are much the same as in many other countries, with a large number of buyers and sellers, and relatively free entry into the business.

There are large numbers of producers and a reported 400 jobbers in the Damascus Market. The number of wholesalers is much smaller, but there appears to be open entry into wholesaling. There is also a large number of retailers. This condition leads to a competitive market where market conduct generally takes the form of most participants being price takers and individual operators not being able to have any important influence on price. This comes closer to the ideal where government imposes strong penalties for fraud or collusion and where ease of entry into the business by any competitor is allowed. Under these circumstances the industry is responsive to changes in supply and demand and producer and consumer interests are protected by free and open competition.

Instead of trying to guarantee competition in the Syrian markets, SARG has attempted to control market conduct by setting fixed prices at all levels of exchange in the system. From discussion with individuals and from a few papers written on the subject it appears the purpose of this is to protect both consumers and producers from exploitation by middlemen. The fixed margins and price levels administered by SARG has resulted in wholesalers not taking title to local products, but they operate only as commission

agents. On apples in storage, on bananas and some other imported items, wholesalers do take title to the products, however. In some cases they also finance producers. Examples of all types of operations exist, including producers selling direct to consumers.

The combined result of SARG setting prices and also having nationalized much of the marketing and processing in most of the rest of the economy discourages cost saving investments in facilities and focuses most effort on the part of middlemen to find ways to make money by violating the price rules, or by increasing volume without increasing cost or without adding services. Under these circumstances, SARG is the only source of investment capital. No evidence of any private investment in wholesale or retail marketing facilities was seen on field trips in Syria. Purchase of trucks is an exception, however; wholesalers interviewed hired most of the trucks used.

Entry into wholesaling is relatively easy because the capital requirement is relatively low. Refrigerated storage space can be rented from the government and trucks are available for hire by the trip. Financing and space on the already crowded markets are likely to be the limiting factors. In any case, both buyers and sellers have so many alternatives, it appears that it is not necessary to fix prices of perishable fruits and vegetables to protect producers and consumers if the SARG would provide the basic conditions for market news and prevention of fraud and collusion.

2.2.3 Prices and Marketing Margins

In the time available it was not possible to develop much data to document performance. Where supply, price and margin data are available, it is often possible to develop evidence as to whether a market is responding to changes in the market forces or whether there is price behavior that cannot be explained by the usual market forces.

Examination of the government price list for vegetables at the Damascus market shows a variation in the wholesale-retail marketing margin allowed. The percentage margin varied from 16 to 29 percent while the Jobber margin remained at 4 to 5 percent. The retail margin fluctuated around the 20 percent "rule of thumb," but varied from 12 to 25 percent. Wholesale-retail percentage margins were generally lower on fruits than on vegetables. However, fruit price levels were higher and the margin in S.L. per Kg. were closer (Table 2.2.1).

The wholesale and retail prices reported by the Central Bureau of Statistics on many fruit and vegetable items are reporter estimates of the prices actually being charged. Comparisons made over years and between Damascus and Aleppo showed considerable variation in the average annual retail prices, wholesale retail margins, and in the price and margin differences between Damascus and Aleppo. This suggests the market was behaving in about the same manner as one would expect a free market to behave despite prices being fixed by government (Table 2.2.2 through 2.2.6).

Table 2.2.1 List of the maximum prices (best prices) of
vegetables and fruits in Damascus
March 11, 1979

Name and genus of commodity	Wholesale	Jobber - Wholesale price spread	Half Wholesale	Retail - Jobber price spread	Retail
(Syrian Piasters/Kg.)					
A. <u>Vegetables:</u>					
tomato no.1	190	10	200	55	255
" " 2	125	6	131	34	165
small squash no.1, for stuffing	145	7	152	23	175
squash no.2	90	4	94	16	110
local potatoes no.1	145	7	152	23	175
" " no.2	100	5	105	20	125
eggplant	140	7	147	3	170
tripoli onion no.1	60	3	63	12	75
yellow cauliflower	90	4	94	16	110
white "	55	2	57	13	70
cabbage no.1	45	2	47	13	60
turnip no. 1	25	1	26	9	35
carrots no.1	45	2	47	13	60
broad beans	150	7	157	23	180
B. <u>Fruits:</u>					
Acquadurian or Panami Banana no.1			245	20	265
" " no.2			150	20	170
Lebanese or Jordan banana			200	20	220
Grape fruit 90	90	4	94	16	110
double red apple 72-100					
grains 270	270	13	283	42	325
" " " 113-120 255	255	12	267	38	305
golden or starker apples: 72-100					
grains 250	250	12	262	38	300
" 113-120 210	210	10	220	30	250
golden, starker or double red apples					
130-160 grains 160	160	8	168	22	190
145-160 " 135	135	6	141	19	160
above 160 " 115	115	5	120	20	140
Acid lemon no.1 160	160	8	168	22	190
" " no.2 120	120	6	126	19	145
Navel orange no.1 210	210	10	220	30	250
" " no.2 140	140	7	147	23	170
Local " no. 1 120	120	6	126	19	145
" " no. 2 80	80	4	84	16	100
Shamuti orange, variety no.1 150	150	7	157	23	180
sweet orange no.1 125	125	6	131	19	150
valencia " 135	135	6	141	19	160
satsuma " 200	200	10	210	30	240
dementines (small tangerines) 300	300	15	315	45	360

Source: Head of the Executive Office in the Mohafaza of Damascus,
Mohamed Farouk Al-Hamwi

Table 2.2.2
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Table 2.2.2 - Marketing price spreads for fruits and vegetables,
Damascus, Syria, price list, March 11, 1979

Commodity	Retail price (piasters/kg.)	Retail - Wholesale price spread (%)	Retail - Jobber price spread (%)	Jobber Wholesale price spread (%)
A. <u>Vegetables</u>				
Tomato No.1	255	25	22	5
Tomato No.2	165	24	21	5
Small squash No.1	175	17	13	5
Squash No.2	110	18	15	4
Local potatoes No.1	175	17	13	5
Local potatoes No.2	125	16	16	5
Egg Plant	170	18	14	5
Tripoli onion No.1	75	20	16	5
Yellow Cauliflowers	110	18	15	5
White	70	21	19	4
Cabbage No.1	60	25	22	4
Turnip No.1	35	29	25	4
Carrots No.1	60	25	22	4
Broad beans	180	17	13	4
B. <u>Fruits:</u>				
Banana No. 1 (Cent.Amer.)	265		8	
Banana No.2 " "	170		12	
Banana, Lebanese/Jordan	220		9	
Grape fruits	110		15	
Db1. Red Apple, 72-100	325		13	
Db1. Red Apple 113-120	305		12	

Table 2.2.2 continued

Table 2.2.2
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Commodity	Retail price (piasters/kg.)	Retail - Wholesale price spread (%)	Retail - Jobber price spread (%)	Jobber Wholesale price spread (%)
Golden or starken apples, 72-100	300	17	13	5
Golden or starken apples 113-120	250	16	12	5
Golden or Db1. red apples 130-160	190	16	12	5
" " " " " 145-160	160	16	12	4
" " " " " above 160	140	18	14	4
Acid lemon No.1	190	16	12	5
" " No.2	145	17	13	5
Navel orange No.1	250	16	12	5
" " No.2	170	18	14	5
Local orange No.1	145	17	13	5
" " No.2	100	20	14	7
Orange (?) No.1	180	17	13	4
Sweet orange (?) No.1	150	17	13	5
Valencia	160	16	12	4
Satsun	240	17	12	5
Dementines small tangerines	360	17	12	5

Source: Head of the Executive Office in the Mohafaza of Damascus,

Mohamed Faruk Al-Hamwi

TABLE 2.2.3

Watermelon: Retail prices and wholesale -
Retail price spreads, 1970-1977

Year	Damascus	Aleppo	Damascus	Aleppo
	Retail Price. (piasters/Kg.)		Wholesale - retail price diff. (percent)	
1977	55	65	31	23
1976	80	71	19	21
1975	80	67	21	25
1974	61	66	25	20
1973	70	63	19	19
1972	31	25	19	24
1971	38	26	21	23
1970	37	37	19	22

Source: Central Bureau of Statistics, Statistical Abstract

Table 2.2.4 Local potatoes: Retail prices and wholesale -
Retail price spreads, 1979-1977

Year	Damascus	Aleppo	Damascus	Aleppo
	Retail Price (Piasters/Kg.)		Wholesale - retail price diff. (percent)	
1977	136	131	15	18
1976	139	144	25	19
1975	94	96	15	23
1974	74	83	18	24
1973	61	66	15	20
1972	41	50	20	30
1971	43	54	14	33
1970	42	54	14	33
1969	43	52	14	19

Source: Central Bureau of Statistics, Statistical Abstract

Table 2.2.5 Imported potatoes: Retail prices and wholesale -
Retail price spreads, 1970-1977

Year	Damascus	Aleppo	Damascus	Aleppo
	Retail Price (Piasters/Kg.)	Retail Price (Piasters/Kg.)	Wholesale - retail price diff. (percent)	Wholesale - retail price diff. (percent)
1977	144	135	21	12
1976	123	143	12	16
1975	112	120	20	21
1974	70	89	10	27
1973	70	65	15	12
1972	55	55	24	37
1971	42	54	0	30
1970	42	54	19	20

Source: Central Bureau of Statistics, Statistical Abstract.

TABLE 2.2.6 Wholesale and Retail Prices and Price Spreads of Selected Fruits and Vegetables in Damascus and Aleppo, 1977 Annual Average.

Item	Damascus		Retail-Whlse Price Spread (%)	Aleppo		Retail-Whlse Price Spread (%)
	Wholesale (Syrian Piaster/Kg)	Retail		Wholesale (Syrian piaster/kg)	Retail	
Local tomatoes	84	112	25	80	102	22
Imported tomatoes	200	215	7	135	167	19
Eggplant	131	166	21	97	122	20
Broad beans, green	139	166	16	107	128	16
Cucumbers	115	141	18	140	167	16
Cauliflower	57	80	29	55	66	17
Cabbage	50	68	26	49	59	17
Local potatoes	116	136	15	108	131	18
Imported potatoes	115	144	20	105	135	22
Onions, red	85	91	7	94	114	18
Apples, golden	207	246	16	182	221	18
Oranges	172	196	12	150	160	6
Lemons	161	197	18	142	173	18
Grapes (Hiloone)	173	186	7	192	204	6
Apricots	244	278	12	231	306	25
Peaches	258	275	6	288	333	14
Local pears	252	278	9	277	313	12
Local cherries	275	330	17	236	294	20
Watermelons	38	55	31	50	65	23
Melons	46	60	23	49	63	22
Bananas	249	279	11	242	281	14
Figs	87	102	15	99	114	13

Source: Central Bureau of Statistics, Statistical Abstract, 1978. PP.392-400

No data were found that separate out the components of marketing costs or profits as was done in the example from the United States for lettuce and potatoes for 1973 (Table 2.2.7). In this case profits were within acceptable ranges despite the large marketing margins of 81.3% for lettuce and 59.3% for potatoes. The main components of these marketing margins were labor costs, transportation costs, packaging costs (for potatoes) and profits in the order listed. These data along with margin estimates over-time and individual company financial statements provide a means of evaluating industry performance.

An example of marketing margin components was obtained for imported bananas sold in the Damascus market in January 1979. The largest components was the import duty at 0.65 S.L. or 25 percent of retail price. The combined wholesale retail margins were 17 percent of retail price, considering the length of storage and losses, this appears to be a low margin. It is less than the usual margins charged in the United States for bananas (Table 2.2.8).

2.2.4 Grades and Standards

Grades and standards for fruits and vegetables were reported to be inadequate to efficiently facilitate commerce within and among Arab states. It was suggested in interviews that uniform grades and standards are needed and should be prepared in Arabic, English, French and German.

Accurate description of products is essential for price control programs and for modern commerce. We were unable to explore this matter in detail, but are merely reporting that in response to our question need for new grades and standards were reported.

2.2.5 Assessment and Recommendations

The fresh fruit and vegetable industry has experienced rapid increase in demand in the last decade and it will likely continue to grow rapidly in the foreseeable future. The industry has responded to this demand and there is an abundant supply and wide variety of good quality fresh products available. This is in rather sharp contrast to processed fruits and vegetables, as there is limited supply and variety available.

Because local fresh fruits and vegetables can be handled without many facilities, the industry has been able to supply growing markets without much new investments. There is little evidence of new investment in facilities (except trucks) in the last decade. In the last couple of years SARG has begun to make investments. There appears to be no climate to encourage private investors to build new facilities. As a result, current (1979) wholesale and retail facilities are old and obsolete. Labor productivity is extremely low as is the case in many other marketing activities in the country. However, the industry has managed to provide good quality and variety. As demand continues to grow it is possible to meet this increased demand with efficiency if the private and public sector can work together to plan and develop efficient facilities properly located and well managed.

Table

2.2.7 --Lettuce, California: Components of margins per head at retail, 1973

Costs and profit	: Farm : value : <u>1/</u>	Marketing functions			: Retail : price : <u>2/</u>
		Processing	Wholesaling	Retailing	
		<u>Cents</u>			
Labor	-	2.61	-	9.7	-
Packaging	-	1.31	-	.6	-
Transportation ..	-	<u>3/</u> .30	<u>4/</u> 6.12	-	-
Business taxes ..	-	.10	-	.6	-
Depreciation	-	na	-	.2	-
Rent	-	na	-	.2	-
Repairs	-	na	-	.1	-
Advertising	-	na	-	.7	-
Interest	-	.01	-	.3	-
Energy	-	na	-	.3	-
Other	-	<u>5/</u> 1.61	-	2.4	-
Profit	-	<u>6/</u> 2.26	-	1.7	-
Unallocated	-	-	<u>6/</u> 2.88	-	-
Total	7.8	8.20	9.00	16.8	41.8

na = not available. 1/ Derived by subtracting costs for harvesting and field-packing from the f.o.b. price. 2/ Average of BLS monthly prices weighted by unloads in 41 cities. 3/ Includes hauling of empty cartons and stitching equipment and packed cartons to f.o.b. shipping point. 4/ Includes cooling and loading cost of 1.2 cents at point of production and intercity transportation costs to New York, Chicago, Atlanta, Dallas and Los Angeles of 4.9 cents. 5/ Includes insurance, telephone and telegraph, office sales salaries, brokerage fees, and allowances for damaged merchandise. 6/ Residual.

Table

2.2.7a. --Potatoes, fresh: Components of margins per 10-pound bag, 1973

Costs and profit	: Farm : value : <u>1/</u>	Marketing functions			: Retail : price : <u>2/</u>
		Processing	Wholesaling	Retailing	
		<u>Cents</u>			
Labor	-	6.5	-	20.1	-
Packaging	-	<u>3/</u> 5.7	-	.8	-
Transportation ..	-	.3	12.6	-	-
Business taxes ..	-	.2	-	1.4	-
Depreciation	-	.9	-	.9	-
Rent	-	<u>4/</u>	-	1.2	-
Repairs	-	.5	-	.6	-
Advertising	-	.1	-	1.9	-
Interest	-	.4	-	.3	-
Energy	-	.4	-	1.5	-
Other	-	<u>5/</u> 2.2	-	3.3	-
Profit	-	1.5	-	2.1	-
Unallocated	-	3.4	<u>6/</u> 3.9	-	-
Total	49.8	22.1	16.5	34.1	122.5

1/ Includes on-farm storage, hauling to packing plant, and shrink. 2/ BLS monthly prices weighted by unloads in 41 cities. 3/ Includes cost of master container and polyethylene bags. 4/ Less than 0.1 cent. 5/ Includes administrative, brokerage, insurance, waxing, non-acceptance of shipped goods, and other unspecified costs. 6/ Residual.

Table 2.2.8 Prices, costs and margins for bananas January, 1979

<u>ITEM</u>	<u>LS/Kg</u>
retail price	2.65
wholesale price	2.40
price delivered Damascus	2.20
gross profit to wholesaler (.20) covers, ripering, storage, labor etc.	
import duty	.65
transportation	<u>.06</u>
f.o.b. port	1.49

<u>MARGINS</u>	<u>LS/Kg</u>	<u>PERCENT OF RETAIL</u>
port to retail	<u>1.16</u>	<u>44</u>
import duty*	.65	25
wholesale markup	.20	7.5
retail markup	.25	9.4
transportation from sea port	.06	2.25

* Import duty is 45% of invoice

Source: Personal interview with wholesaler Damascus market. February 1979.

As an example of a problem that could be avoided in the future is the new refrigerated storage at the new market. Ten units already completed are too small for efficient operation and even in this modern age are not designed to facilitate the use of fork lifts. Ten more are under construction with the same apparent problem. More careful planning and study needs to be involved in such major investments.

Lack of adequate wholesale and retail facilities result in waste of labor and waste of product. No documentation of this was available to the team but it is readily apparent. The only shops that had adequate space and facilities were the new government owned facilities.

Recommendations

I. The industry has responded well to the increased demand and it would appear that domestic production and imports from nearby countries can meet most of the needs to the year 2000. Capital investment in marketing and processing facilities have lagged behind. This is the most important need for the future performance of the industry. Marketing efficiency and labor productivity could be greatly improved by designing facilities with adequate refrigeration, mechanized handling and storage, and adequate retail space for proper quality control and efficiency.

This can be accomplished in a number of ways. The alternatives are listed in the order of the team's judgement of the degree of efficiency.

A. Publish a clear policy of the fresh fruit and vegetable industry being a sub-sector reserved for the private sector, and encourage private investments with government loans and assistance for building new facilities.

B. Government plan with the private sector and government build new grading centers, storage, wholesaling, and retailing facilities and lease them to the private sector on a competitive bid basis.

C. Continue the expansion of government building and operating marketing and processing facilities.

II. Establish new grades and standards to facilitate trading and/or price control within Syria and in international trade. Whether these are in cooperation with other Arab states depends on the willingness of neighboring states to cooperate on such a project.

III. Eliminate price control on perishable fruits and vegetables and maintain relatively low tariffs on trade. There is adequate competition in the area to protect the interests of producers and consumers. SARG could facilitate improved performance by adopting a role of improving competition, market information and grades and standards.

Because of perishability of the product and difficulty of routinizing operations, decision making in fruits and vegetables needs to be decentralized. It is one of the most difficult industries for government to try to operate and control.

2.3 CEREALS MARKETING

Cereal Production in Syria is mainly limited to wheat, barley, maize and millet. Dry legumonous seeds for food and feed consist primarily of lentils, chick-peas, dry broad beans, dry haricot beans, dry kidney beans, sesame seed, and peanuts. Details concerning the production system, levels and geographic distribution for these crops are covered in other reports prepared for the Assessment and will not be discussed in this section. This part of the assessment will be primarily concerned with assessing the marketing system for cereals by looking at selected important food and feed crops. Some are important because they are significant foreign exchange earners but most are important because Syrian production is not sufficient to meet local needs and significant quantities of foreign exchange is required to purchase the remaining needs. In addition, government policies related to self sufficiency, price subsidies and stabilization schemes, significantly shape the cereal marketing system as do policies related to government ownership and operation of considerable segments of the Syrian economy.

An assessment of a marketing system is an involved and difficult task even if limited to criteria of efficiency. One reason is that accounting costs do not reflect true costs to an economy and the opportunity costs are extremely difficult to determine. In an economy where the marketing system is used to accomplish non-economic objectives, the task becomes even more difficult, however, in cereals marketing there are some rather clear problems and opportunities for improvement, and there are alternative means for achieving an improved marketing system.

2.3.1 Major Cereals

The major grains and pulses in Syria are in the order of volume of production wheat, barley, and lentils. The annual production during the period 1972-77 for these crops averaged: wheat 1,432,000 tons, barley 578,000 tons and lentils 88,400 tons. The seasonal variation in yield between years is very large depending primarily on the annual rainfall. Production figures for each year of the period 1972-1977 range for wheat, from 593,000 to 1,808,000 tons; barley, from 102,000 to 1,059,000 tons; and lentils from 24,000 to 136,000 tons.

Total production of wheat is spread over four groups of wheat varieties, two groups of barley and two groups of lentil varieties approximately as follows:

<u>Wheat</u>		<u>Barley</u>	
Mexican wheat	35%	White barley	15%
French wheat	5%	Black barley	85%
Italian wheat	15%		
		<u>Lentils</u>	
Hamari wheat	45%	Red lentils	85%
		White lentils	15%

The Mexican wheat varieties are expected to increase in the future and are already predominant on irrigated land. At present more than 10% of the total area under wheat is irrigated and wheat yields on irrigated land are on the average more than twice as high as those on rainfed land. Wheat is grown under rainfed conditions on the land with the highest precipitation while barley is cultivated in the drier areas. Aleppo, Hassakeh and Raqqa are the main producing areas in Syria. The Hassakeh mohafazat alone accounted for almost 1/3 of the total wheat production during the period 1972-1977 and about 1/4 of the total barley production, making it by far the most important wheat and barley producing area. Concerning lentils, Idleb is also an important area.

During the period 1967-1977 total production increased by 7.5%, 3.5% and 2% per annum for wheat, barley and lentils respectively. These increases are lower than those forecast in the 4th five-year plan 1975/76-1979/80 but may represent realistic increases for the future.

2.3.1.1 Structure of Cereal Production

The average size of individual land holdings range from 1.9 ha in the Idleb mohafazat to 24.9 ha in the Hassakeh mohafazat. In spite of this small size however, almost all wheat and barley is reportedly harvested by combine. Particularly in the Hassakeh mohafazat, land is to a great extent farmed by large tenants who rent land from small landowners on a share-cropping basis. State farms exist and the Government promotes the formation of multipurpose cooperatives, but these forms of organization still play an insignificant role in Syrian agriculture in terms of delivered grain quantities. Agricultural extension services to the farmers are generally not well developed.

Lentils are harvested exclusively by hand since the combines are not at present equipped to harvest lentils. The varieties used are not selected for mechanized harvesting and the seed bed is usually not level enough for machine cutting. Lentils are mainly grown by small farmers and many of the large farmers are not able to get the labor required for a crop like lentils.

According to the Annual Agricultural Abstract there were 1071 combines in the Hassakeh mohafazat and 1036 tractors, 732 of which had engines of more than 50 hp. Thus combines are able to harvest some 484,000 ha of wheat and some 305,000 ha of barley or on the average, about 730 ha per combine. During the period 1972-1977 this amounted to about 570 tons of wheat and barley each year per combine.

2.3.1.2 Harvesting and Purchasing Practices

The harvesting and purchasing period in the Hassakeh province is as follows:

wheat	June 1 to August 15
barley	May 25 to July 1
lentils	May 15 to June 15

The cost of rented combine service amounts to 7-10% of the crop. In the case of a very poor harvest the charge was reported to be SP 45/ha. Because of increased fuel and machinery costs, these are expected to increase. As a rule, big farmers may own both a truck and a combine. Generally, however the truck is frequently a pick-up with insufficient cargo-carrying capacity for the quantities of grain to be transported during the harvesting season.

At present, most combines are equipped with facilities for bagging grain. Apparently, grain farmers are not experiencing critical shortages of labor. Permanently employed tractor drivers are paid SP 400 per month and temporary drivers will receive about SP 2,000 per harvesting season. Unskilled workers hired temporarily for the harvesting season are paid around SP 350 per month for temporary employment. A significant number of workers are required to sew bags and to collect the bags on rented trucks for transport to market.

For the larger producers, bulk handling could come rapidly if bulk receiving facilities were available at grain purchasing centers. There would be an economic incentive to adopt bulk handling because of the possibility of reducing the number of workers required for handling bags and the cost of bags. Bulk handling would, however, require a significantly expanded transport capacity to keep up with moving the bulk grain from the fields to the purchasing centers. Some grain, especially that produced by small operators would likely need to continue to be handled in bags. But after it has been collected at a central point, it could be dumped into bins and hauled in bulk from that point with considerable reduction in cost.

2.3.1.3 The Cereals Trade in Syria

The General Organization for Trading and Processing of Grain, GOTPG, has the state monopoly for grain trade and is the sole legal purchasing organization. The seasonal variations in purchases however, are even more pronounced than the variations in production. The annual quantity of grain purchased during the period 1972-1977 was for wheat, 519 thousand tons, for barley 139 thousand tons and for lentils 58 thousand tons.

This implies that the Cereals office has purchased on the average 36% of the total wheat production, 24% of the total barley production and 66% of the total lentil production during this period--less during poor crop years and more during good crop years. The Cereals Organization more than fulfilled its purchase plan in 1978 for wheat (115%) and for barley (236%). For 1979 the GOTPG planned to purchase the following amounts: wheat 1,065,000 tons, barley 334,000, tons, lentils 12,000 tons, and beans 17,000 tons. For barley, there was very little purchased because 1979 has been a very poor crop year.

In terms of grain traded, the Hassakeh mohafazat is by far the most important area, accounting for 59% of the Cereal Office total wheat purchases during 1972-1977 and 47% of its barley purchases.

Illegal domestic and border sales occur, but the extent is not known. The major part of untraded grain is retained on the farms for farm and household needs. The present high subsidization of bread serves as an important incentive to attract increasing quantities of wheat to the purchasing centers operated by the GOPTC throughout the country.

This organization is also responsible for the foreign trade in grains. Syria exported in 1972 more than 300,000 tons of wheat but during 1977 imported some 600,000 tons of wheat, and flour as wheat equivalent at a rate of 0.72 kg of flour to 1 kg of wheat. Lentil exports totalled some 55,000 tons during 1977.

Cereals prices are fixed by the Government once annually. The basic price is for grain with less than 2% impurity and is reduced by 1% for every additional percentage of impurity up to 10% (8% for barley) and thereafter by 1.5% up to 40% impurity. For lentils the basic price is reduced by SP 5 per ton for up to 2% of bad grain, SP 10 per ton for 2-4% of bad grain, and SP 15 per ton for 4-5% of bad grain.

To promote the early delivery of grain the following bonuses were paid per ton in 1978 for early deliveries:

<u>Deliveries</u>	<u>Wheat</u>	<u>Barley</u>
May-July	120	100
August	80	100
September	40	100

Wheat Consumption. The most important cereal consumed in Syria is wheat. Bread is the main staple in the Syrian diet and provides most of the daily caloric intake for the typical Syrian whether he is rural or urban. In addition, considerable quantities of wheat are consumed in other forms such as burgol, which is the primary ingredient in "Kebbie" and in the locally produced and consumed sweets, pasteries and pastas.

Although production and trade in wheat and wheat flour are highly variable, the net consumption of wheat is fairly stable. The short falls in production are made up by imports, and in high production years, some wheat is exported. An estimate for the disappearance of wheat in thousands of tons has been made below using annual averages in Syria for the years 1972-1977:

	annual average 000 tons
+ wheat imports	126
+ wheat flour imports as wheat	134
- wheat exports	70
+ wheat production	1,431
- seed requirements (130 kg per ha)	193
- illegal foreign sales and losses, 10%	143
average wheat disappearance	<u>1,286</u>

Based on these calculations, Syrians consume some 170-175 kg of wheat per year. This calculation should be considered only a rough approximation and indicates a slightly larger rate than the base consumption figures for 1975 used in the commodity demand projections part of this report. According to those projection, total wheat consumption will increase in the decades ahead but the year 2000 per capita consumption will decrease.

In figure 2.3.1 the structure of the marketing channels for wheat is illustrated from production to retail/consumption. Most wheat production at present is utilized on the farm where it is produced with limited quantities traded locally as wheat for direct consumption. As indicated earlier, only 10-40% of production (depending on the magnitude of the crop) leaves the mohafazat.

The Cereals office purchases all such grain from farmers through its purchasing centers. In each mohafazat there is a regional office and one or more permanent centers. During the purchasing season a number of temporary centers are also established as required, depending on the crop.

According to information from the GOPTG, cooperatives are paid an extra bonus of SP 15 per ton for all grain which their members delivered with the Cooperative keeping 5 SP and the farmer getting 10 SP. Prices apply at purchasing centers, but for deliveries of less than 20 tons, or from cooperatives, the Government defrays the cost of transportation. The total warehouse capacity at the permanent centers at present consists of 742,000 tons. The storage consists of several types of storage including, tents, concrete structures, open sheds and sheds with wire netting walls. In addition, of course, any quantity of bagged grain can be stored in the open during the harvesting season.

Annual purchases at the centers ranges from a few hundred tons of grain to more than 50,000 tons during good crop years. Sometimes the farmers must wait for a day or more outside a center to deliver grain. Generally, however, grain is delivered on a schedule and is not delivered until it can be received.

In the Hassakeh mohafazat the average purchase for each of 16 centers during the period 1972-1977 was 19,000 tons of wheat, 4,000 tons of barley, and 1,000 tons of lentils for a total of 24,000 tons of grain altogether.

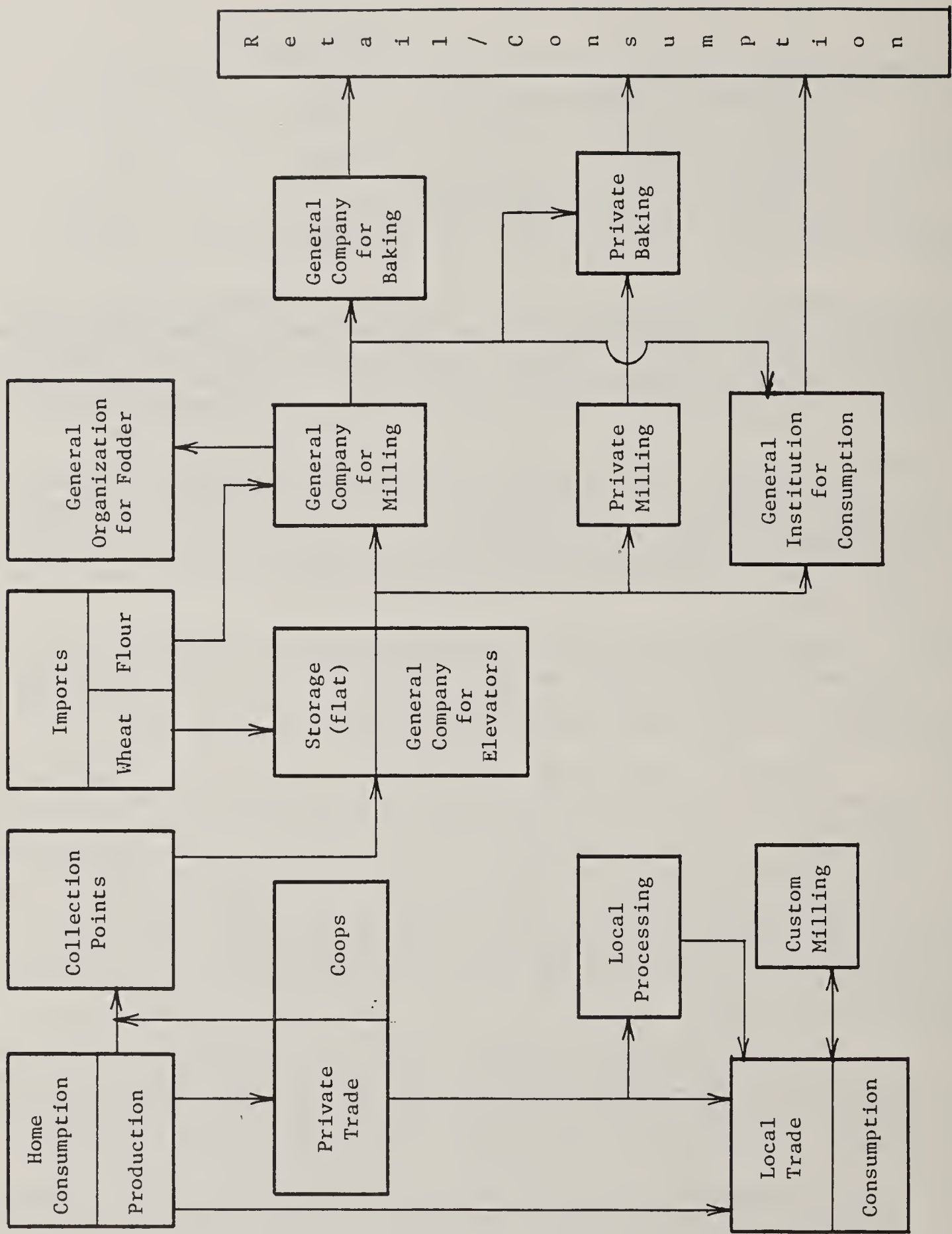


Fig. 2.3.1 Wheat Marketing Channels

All grain at present is delivered in bags which cost SP 3.75 per new bag and SP 2.75 per second-hand bag. The main quantities are delivered at the purchasing centers but the Cereals Office also makes arrangements to purchase grain directly from some producers particularly the small farmers and trucks are sent to the farm to collect the grain.

The Cereal Office owns a number of heavy trucks with a payload of about 25 tons and medium trucks with a payload of about 10 tons. Temporarily, trucks can be transferred from one mohafazat to another. These trucks are mainly used to transport grain from temporary centers to permanent centers or to regional grain silos. Farmers usually have to buy transport services from private truck owners for transport from the farm to purchasing center.

Direct purchase of grain at the central storage silo plants is not practised. All purchases are made through the purchasing centers of the Cereals Office. The operation of the silo plants is the responsibility of the General Company for Elevators. This in itself presents a problem in efficient handling of grain. Careful checking procedures must be followed to inventory and weigh grain as it changes hands. Because the cereals purchasing centers and the central storage silos are the responsibility of different government agencies, duplicative checking procedures must be followed as the grain is transferred from the Cereals Organization to the General Company for Silos and again as it is transferred back to the Cereal Organization controlled General Company for Milling.

The Syrian Government, through its Major Projects Administration, is rapidly establishing modern grain storage facilities throughout Syria. During the seventies, 14 new silo type installations will have been completed adding 770,000 tons of silo storage capacity to the already existing 40,000 ton port silo in Lattakia.

The new silos are equipped with high capacity reception and discharge facilities adapted to their storage capacity. These central terminals, however, are too few to provide satisfactory service to the wheat producers and their reception capacities cannot be effectively utilized with deliveries of grain in bags.

All storage, however, is not under the control of the General Company for Elevators. Approximately 530 thousand tons capacity is flat storage controlled by the GOTPG for storing grain in bags. The General Organization plans to have all grain in storage by September of each year. Grain typically is delivered by the GOTPG to the General Company for Elevators where it is held until needed for milling and in some years, for export.

Most of the wheat, by far, is delivered from storage to the General Company for Milling which last year handled approximately 600 thousand tons. Only about 10 percent of last year's volume was handled by private mills and the rest (approximately 50 thousand tons) was distributed as wheat at a subsidized price by the General Institution for Consumption.

Since Syria is seldom self sufficient in wheat, the GOTPG imports wheat and wheat flour to supplement the local production. Because of a shortage of milling capacity, most wheat is imported as flour and delivered directly to the General Company for Milling. The primary reason for not delivering imported flour directly to the bakeries is because imported flour is usually mixed with locally produced flour before delivery. When the mills already under construction are completed, the capacity for mills will be sufficient so that Syria will no longer need to import flour. All by-products resulting from flour milling are sold to the General Company for Fodder to be sold as animal feed. This will be discussed in more detail in a later section.

The General Company for Baking at present is only capable of processing about 10% of the flour consumed in Syria. Although it is the intention of the government to expand the General Baking Company capacity, about 90% of the bread produced in Syria is baked by private bakeries. One of the stated reasons for the government to take over more of the bread baking capacity is to upgrade the quality of bread available in the market.

In addition to the wheat distributed to consumers by the General Institution for Consumption, it also obtains flour from the General Milling Company for distribution. Approximately 90% of the flour distributed to consumers as flour is distributed by this organization.

Finally, it should be noted from Figure I that several government organizations and companies exercise control over wheat as it flows through the marketing channel from producer to consumer. Although this kind of multiplicity of control is expected in an economy dominated by the private sector in order to assure competition in the market place, it would not appear to be necessary in a marketing system which is predominately public.

2.3.2 Cereals Marketing Policy

An important role for prices in any economic system is to serve as a communication link between producers and consumers. The prices of inputs communicates to farmers which inputs are relatively scarce and expensive and which are more abundant and cheap. The prices for products communicates to producers which products consumers want most and which products the producer might cut back. Thus prices serve allocation and rationing functions through incentives to economize on more expensive inputs.

The goals of the current policy regarding the marketing of agricultural products were specified earlier in this report and involve more than just price policy. They involve income transfer policies as well. In order to achieve these goals, the SARG has implemented a number of policies which affect the marketing of cereals. Since these policies must serve political and social ends as well as economic, they sometimes have an adverse impact on the marketing system. Expanding the role of the public sector at the expense of the private sector in order to protect both the producer and consumer, against the domination of individual intermediaries has sometimes lessened the services provided by the market.

In some cases, these goals result in conflicting policies which can also adversely offset marketing efficiency. Policies which encourage the production of specific crops such as cereals while other policies attempt to hold down the costs of products to consumers result in conflicts which must be resolved by the payment of subsidies or by exercising extreme control over some of the stages in the production/marketing chain. Both the increased costs to government, for subsidies and the implementation of control measures and the lessening of service provided by the market, must be considered as part of the increased cost of marketing. On balance, these should be off-set by economies of scale or by efficiencies gained from other parts of the marketing system. Specialized agencies have been set up for this purpose and now control several of the marketing stages, including industrial processing, of several crops produced in Syria. In addition, the cooperative sector, represented by the Peasant Union has been given more marketing responsibilities which involve more stages of the marketing process. This includes handling the product from the farmers field to the wholesaler and in some cases engaging in processing and/or delivering to the consumer or retail outlet. The responsibility given to the Peasants Union depends on the product, the nature of the marketing channel, and the ability of the Peasant Union to undertake such responsibility. Because it is extremely difficult for the government to take over all the responsibility for marketing all agricultural products, the private sector, represented primarily by the small retailers, has been allowed to market those agricultural products primarily intended for direct consumption.

The marketing activity of the public sector should be based, to the extent possible, on the principle of effectiveness and efficiency whether it consists of evaluating marketing progress or in the relationship with producers. Some important examples are: (1) Providing producers in the remote areas equal access to the market and subsidizing some of the cost of transportation their produce for long distances. (2) Improving the services to producers by taking their production as fast as delivered. (3) Improving the method of valuing products so that all producers receive a fair value for their output on the basis of quality. (4) Providing quick payment to producers after delivery of their products. All of these activities are being applied to some degree to the marketing of cereals.

Although the present marketing policies of SARG have evolved over time through a series of decrees and policy statements and have been shaped by the other programs in agrarian reform, there appears to have always been an attempt to pragmatize their implementation. This has been most obviously done by linking SARG policies related to agriculture through the mechanism of 5 year and annual plans.

In this way, modifications in agricultural policy quickly become part of the plan and are linked with policies for other sectors of the economy which are also planned. This procedure should result in marketing and pricing policies becoming more clear and more coordinated in their implementation during the periods for which they were developed.

2.3.2.1 Wheat

The pricing policy followed by SARG for wheat has a profound effect in shaping the production and marketing system in Syria. It is the government's policy to encourage production and it does so by subsidizing some of the input requirements for wheat production and by the use of high, stable wheat prices. Most of the time, since 1967, the announced farm price for wheat has been higher than the import price. The only exceptions are for the years 1973 to 1975 when the world price of wheat climbed to extreme levels. Since 1976, however, the import price has dropped considerably and Syrian farmers again received more for their wheat at the farm gate than it would cost to import from abroad.

It is the intention of the government to purchase more of the wheat moving into commercial channels and to do this, where possible, through local farmer coops. The implementation of this policy is assisted by prohibiting all private transport of grain between Mahafazata and by subsidizing bread prices so that it is to the farmers advantage to sell all of his wheat at the government support price and buy back bread or flour for consumption. For example, assuming that one kg. of wheat will roughly yield about one kg. of bread, the price ratio of bread to wheat has historically been around 1.0. Meaning that consumers don't pay the marketing and processing cost. Using the 1979 price for wheat of about .75 SP per kg. for wheat and the .55 SP per kg. price for bread, the ratio actually drops to nearly .75. In order for this low a ratio to occur, the government must heavily subsidize wheat marketing and bread baking activities, see Tables 2.3.1, 2 and 3. In spite of this subsidy, however, the percent of wheat production purchased by the government through GOTPG has never been more than 50 percent and during low production years it has been in the neighborhood of 10 percent. This indicates that many producers do not directly benefit from the government subsidy plan either as producers or as consumers. In addition, the pressure from local areas was such that private dealers are now allowed to purchase and process wheat for local consumption as long as it is not shipped outside the Mahafazat. All such local traded wheat does not have the benefit of the government subsidy for bread. No studies have been made to determine the real cost of such local consumption of wheat and the degree to which such consumption occurs solely as a result of tradition or personal preference on the part of producers. It is the government's announced intention, however, to increase the proportion going through government marketing channels.

The impact of prices received for agricultural products affects all farmers whether they are large or small, self-sufficient or commercial, and whether or not they belong to an agricultural cooperative. Cooperative members however, benefit over other farmers in that they receive a 5 percent rebate on the purchases of agricultural equipment and supplies imported by the state as well as receiving the benefit of support prices for their grain. An advantage given by officials to cooperatives in marketing cereals is that it markets directly to the public sector without the speculative distributions which are sometimes caused by private traders.

Table 2.3.1. Prices and Marketing Costs for Wheat-1978

Item	Type of Wheat		
	Common Syrian	Mexican Syrian	General Syrian French and Soft wheat
(SP/ton)			
Ave. price 4% foreign material	727.40	704.15	715.80
Transportation	35.00	35.00	35.00
Handling Cost	4.00	4.00	4.00
Exchange bags (5%)	1.25	1.25	1.25
Loss during transport (0.5%)	3.65	3.55	3.60
Losses during storage mostly flat (0.6% yearly)	2.20	2.10	2.15
Chemical treatment	1.30	1.30	1.30
Insurance (0.25%)	1.85	1.75	1.80
Interest (6 mo. at (7.5%))	27.30	26.40	26.85
Administration Expense (8.65%)	62.95	60.90	61.90
Profit (2%)	14.55	14.10	14.30
Total Cost	881.45	854.50	867.95
Approx. price to mill	<u>727.40</u>	<u>704.15</u>	<u>715.80</u>
Loss to GOTPC	-154.05	-150.35	-152.15
Marketing Margin (%) (Farm price/total cost x 100)	17	18	17

SOURCE: GOTPC

Table 2.3.2. Flour and Bread Prices Syria, 1979.

	<u>Prices of flour</u> (Piasters/kg.)	<u>Prices of bread</u> (Piasters/kg.)	<u>Bakers Gross</u> <u>Margin</u> %
75% imported flour and 25% zero flour (local prod.)	52.50	85	38
White-50% imported flour and 50% unified	37.50	55	32
Unified flour 50% hard, 50% hard wheat 85% milling rate	18.50	35	47

Table 2.3.3. Flour Prices, Syria, 1979

<u>White flour - 1st grade</u>	<u>SP/ton</u>
Price to GOFI (wholesale)	790
Retail price	850
Retail margin -7%	
<u>Flour imported for macaroni</u>	
Government owned plant	385
Private owned plant	615

SOURCE: GOTPC

2.3.2.2 Feed Grains

Feed production is an important activity in the agricultural sector. The most important cereal contributing to this activity is barley which is typically produced from rain fed agriculture in areas too dry for the production of wheat. Other feeds occur as by-products from cotton and flour milling activities.

Feeds are an important component of the livestock and livestock product sector. The World Bank is providing substantial finance (\$17.5 million) for a Livestock Development Project which is being carried out by the Ministry of Agriculture and Agrarian Reform (MAAR). One of the major elements of the project is the provision of credit for sheep fattening and sheep and range cooperatives for the purchase of animal feed.

To assist in the efficient implementation of the project, a study was made in 1978 analysing the production and marketing system for fattening of sheep. This study which was conducted by Farm Key Limited and financed by the IBRD provided a detailed description of the production/marketing system for animal feed. Since a considerable portion of the cereals provided in Syria is utilized as feed, a summary of that study, combined with other information provided our marketing assessment team, is included in this report.

Figure 2 indicates the flow of feed and livestock products through the feed/livestock marketing system. At almost every point in the chain, State, cooperative and private operators coexist.

Barley production has averaged just over 500,000 tons per annum over the last ten years but with very wide variation in production from year to year. This variation is mainly due to variations in yields but is also due to a lesser extent to quite large variations in area planted. It appears that, following years of good yields, area planted has risen and following poor yields, area planted has fallen.

Barley is bought by GOTPC at 57 buying centers. The centers are open from middle May to September. For small lots, GOTPC employs agents to purchase the barley on its behalf. The purchases of GOTPC have varied from insignificant amounts in 1971, 1973 and 1979 to nearly 40% of production in 1976. In good years, the share of total production purchased by GOTPC has typically been around 1/3 of production but in poor years it has fallen to a negligible proportion. This is primarily because in bad years, farmers satisfy their own needs first for their livestock which leaves little left over for the market.

The GOTPG buys barley from farmers at fixed prices. Some premium is given for deliveries before the main harvest and for late delivery. The price level is fixed by the Supreme Agricultural Council. In fixing prices the Supreme Agricultural Council receives the following information: a) An estimate of the area planted. b) A forecast of production. This is carried out by a

Figure 2.3.2 Channels For Animal Feed Marketing

SOURCE: Farmkey Limited, Banbury England.

committee composed of representatives of MAAR, GOTPC, the Statistics Bureau, the Peasants Union and The Baath Party. c) Estimates of costs of production prepared by the Economics Department of MAAR. d) Production and consumption estimates for each Mohafazat with stocks held prepared by GOTPC.

The private trade in barley is restricted primarily by not allowing the transport of barley between Mohafazat's without a GOTPC certificate.

The price level for barley for any one year is conditioned by a number of factors, such as: a) the size of the harvest, b) the size of stock, c) the quantity of grain on offer, d) prices in neighboring countries, e) size of the sheep flock, cattle herd, etc. and f) prices of alternative feeds. The difficulty the government has in adjusting quickly to all these factors may explain part of the variability in the amount of harvest purchased. The size of the harvest, however, is the major factor affecting price. Clearly, a low rainfall year leads to a low harvest and a high price for barley and vice versa for a high rainfall year. Obviously, it would be better to try and stabilize prices at least to a degree. Actions which would assist in this effort would include the following: a) Publishing state buying prices prior to harvest at a realistic level, thereby preventing speculation. b) Holding buffer stocks. This is the main purpose of the 250,000 ton emergency food reserve envisaged under the First Livestock Development Project. c) Improving yields from dryland farming by applying modern techniques based on proven experience and research, and d) Increasing production in irrigated areas.

Complete stabilization of prices is not possible and may not itself be a desired aim. With fluctuating output, stabilizing prices may destabilize returns and incomes. In the consumer's case, a controlled rise in price in a bad harvest year should encourage economy of use.

Most of the barley purchased by GOTPC is sold to GOF. In some periods, the price sold to GOF is lower than the GOTPC buying price. In 1977 for example, the margin between the GOTPC buying price and the selling price to the GOF was minus SL 50 per ton. The margin to cover GOF storage, handling and distribution was SL 10 per ton for barley sold to cooperatives and SL 40 per ton for barley sold to private buyers.

A more detailed breakout of costs associated with the government's barley buying activities has been prepared for the 1978 crop, see Table 2.3.4. This analysis shows that although the difference in the price paid by the GOTPC and the price sold to the GOF is 30 SP per ton, the total loss to the GOTPC is estimated to be 168 SP per ton. This loss represents a major subsidy cost to the government. For 1979, the price has been increased to 652 SP per ton in order to recover some of this loss.

Although stable, subsidized prices such as this are intended to benefit producers and to prevent increased prices to consumers, it has the effect of disrupting the communication signals of the market. Such disruptions in the communication system of the market may delay needed adjustments to changing elements in the market and thus impair the efficient operation of the

Table 2.3.4. Prices and Marketing Margins for Black Barley 1978.

	SP/ton
Purchase price, 4% foreign material	530.00
Transport cost	35.00
Handling cost	4.00
Exchanging bags	1.25
Waste 0.5%	2.65
Waste (storage-6mo.) 6%	1.6
Chemical treatment	1.25
Insurance	1.30
Interest 6 mo. at 7.5%	20.00
Administrative expenses 8%	45.35
Profit 3%	15.90
Total cost	658.00
(Marketing costs 19%)	
Sell to G.O.F.*	500.00
Loss to GOTPC	-168.00
Marketing Margin (%)	19
(Farm price/Total cost x 100)	

*Price of barley increased to GOF to 652.85L/ton Feb., 1979

SOURCE: GOTPC

market.

The wheat harvest, like that for barley, shows wide variation over the years. The production of bran and middlings is directly related to the production and milling of wheat. Thus the share of the total market held by GOTPC for bran and middlings varies between about 25% and 100%, depending on the year.

In summary, barley and wheat are bought by GOTPC or through agents. GOTPC sells barley direct to GOF and bran and middlings to GOF after milling. In each case, however, private market channels exist which, sometimes move a sizable proportion of the total production. Cotton is bought by the Cotton Marketing Organization for ginning. The seed is transferred to the oil mills for crushing and the cottonseed cake is sold to GOF.

To complement the supply of feed from domestic production Syria imports a number of feed commodities. Commodities imported included meatmeal, fish meal, soybean meal, yellow corn and superconcentrate for poultry production. Imports of yellow corn have grown quite rapidly recently, to reach 22,000 tons in 1976 valued at \$3,956,000.

The GOF includes these commodities in mixed feeds or may sell them directly to livestock producers. Imports amount to about SL 100 million of the purchases of GOF and home produced feeds about SL 300 million.

GOF itself imports and exports barley directly. The quantity imported and exported over the past six years has fluctuated considerably. Some barley has been exported to make room for wheat storage. It appears from the published trade statistics that Syria is neither a net exporter or net importer of barley, over the long term, although in any one year a sizeable quantity may be exported or imported. Being a small country, and depending primarily on dryland production it must be in a position to trade to balance supplies and demands.

The General Organization for Fodder, GOF, purchases home grown feed from GOTPC or from the cotton oil mills controlled by CGMO and imported feed from TAFCO. This feed may then be sent directly to GOF's stores for sale to coops or private purchasers or it may be passed on for milling and mixing to the General Company for Silos. This Company has new mills at Hama and Aleppo.

GOF sells straight or compound feed through its stores and sales outlets to private buyers or at a discount to members of sheep and range cooperatives or to fattening cooperatives.

2.3.3 Institutional Implementation and Interrelationships

The public sector undertakes the marketing of agricultural products through a number of specialized institutions. Some of these are responsible directly to a ministry while others may report to an intermediate agency or to a company which reports to an intermediate agency. The institution responsible for most of the marketing processes of cereals is the GOTPG. The GOTCP has its headquarters in Damascus and is affiliated with the Ministry of Supply and Internal Trade. It stands ready to buy all of the wheat, barley, lentils and chickpeas offered on the market by producers. The ratios of total production bought annually vary considerably from a very low amount in dry years to around 50 percent in high production years. There are now around 100 buying centers located in the main producing regions for Cereals and the commodities purchased at these centers are transported from the centers to central storage locations which at present number 15 with a total utilized capacity of around 810,000 tons. More buying centers are being added as needed and as resources provided allow. In addition warehouses for flat storage at the mills have facilities for limited storage. There are a total of 5 large mills now in the public sector with a total daily capacity of 560 tons and 12 new mills with a daily capacity of 3000 tons are in the process of starting up. The GOTPC is also responsible for supplying flour to the bakeries, some of which are owned by the public sector. Since the local processing capacity is not sufficient to meet the domestic demand for flour, the cereals office also imports flour for distribution to both public and private bakeries.

The Agricultural Cooperative Bank with headquarters in Damascus is affiliated with the Ministry of Economy and International Trade and has branches in all parts of the country. Although its primary function is to extend agricultural credit, it is closely linked with agricultural marketing operations because it is the principal supplier of agricultural inputs through in-kind loans of fertilizer, seeds and pesticides. The link to marketing is that these in-kind loans are repaid after the farmer delivers his crop to market.

The General Union of Peasants commonly referred to as the Peasant Union is involved in the marketing operation on two levels:

- (1) At the producer level where the cooperative represents its members in receiving payments from the public sector marketing organizations.
- (2) The second level is at the national level where the Union undertakes the processing and distribution of some commodities directly to the retail sector and participate in the government committees to set prices.

Many ministries and government organizations are responsible for parts of the marketing functions concerned with cereals production,

marketing processing and retailing. Many of these activities and responsibilities are also paralleled by the private sector. In some cases where the government has created public institutions with responsibilities formerly exercised by the private sector, these institutions have not chosen to carry out all of the functions formerly performed by the private sector. In most cases, this has been deliberate as an effort to streamline the marketing process and perhaps make it more efficient. In other cases, the government created organizations were not staffed with people who were able to carryout these functions. The problems related to this situation are complicated by the maze of institutions concerned with the marketing process of cereals. The following is a partial list of the government related institutions and organizations with a brief description of their responsibilities for cereals. It is not supposed to be all inclusive and in some cases may be inaccurate in some of its detail, because in the short time available for conducting the marketing assessment, it was not possible (nor even desirable) to ferret out all of the institutions concerned. It is sufficient for our purposes here to indicate the multiplicity of institutions, organizations etc. having responsibilities for some marketing functions and to point out the difficulty of coordinating and implementing any specific government policies related ot cereals without creating cross currents of actions which have great likelihood of countermanding the interests of the governments with respect to a policy change.

It is appropriate to begin with the Ministry of Agriculture and Agrarian Reform (MAAR). This Ministry is the primary one responsible for formulating agricultural policies and programs. It is primarily concerned with the production side of agriculture and its planning activities, both for the 5-year plan and the annual plan, are geared towards allocating Syria's resources in accordance with the stated political and economic goals of the government. These are discussed in more detail in other parts of the Assessment but the ones primarily relevant for cereals are the governments policy to cover the cost of production for cereals, the policy of self sufficiency and the policy of stabilization and regularization of prices, activities of intermediaries and the provisions of sufficient foodstuffs at a low price for Syrian consumers. In this process, however, the MAAR leans more towards the interests of farmers than the interests of consumers.

In addition to the directorates situated within the MAAR, there are several organizations which report to the Ministry. The primary one with respect to the marketing of Cereals is the General Organization for Fodder, GOF, which obtains most of its feed supplies from the GOTPG (primarily barley) and wheat by-products from the General Company for Milling, both of which are controlled directly or indirectly by the Ministry of Supply and Internal Trade.

Other organizations in the MAAR which have an interest in the marketing and pricing policies for Cereals include; the General Organization for Cattle, the General Organization for Poultry and the General Organization for Seeds.

To the extent that the MAAR plays an advocacy role or exercises control in any way, it can find itself faced with conflicts where one group or the other is helped or hurt by the policies implemented.

The Ministry of Supply and Internal Trade, MSIT, plays a very key role in implementing marketing and pricing policies for cereals. The implementation procedures and monitoring for many of these policies rests within the various directories of the MSIT. Within this ministry for example, the annual plans for the various organizations reporting to the MSIT are evaluated in order to determine the requirements for food and feed to supply domestic consumption. At the same time, the MSIT is felt to lean in its judgements towards the interests of the consumer in that it is instrumental in setting low retail price ceilings for many consumer items. This policy is most notable in the retail price set for bread which is subsidized to the extent that several hundred million Syrian pounds are required to make up the difference in revenue from bread sales and the cost of wheat milling and bread baking activities.

One of the important organization attributes to note concerning those organizations and companies responsible for some parts of cereals marketing is that in some cases, companies responsible for a particular marketing function or process, report or fall under the control of a specialized organization while in other cases, companies may report or fall directly under the control of the MSIT and in some cases to another ministry. For example, the GOTPC has two companies that report to it, the General Company for Mills and the General Company for Baking. In its operation, it is directly responsible for collecting wheat, barley, lentils and chickpeas at the various assembly or collecting centers scattered throughout the producing regions. It is also responsible for transporting these commodities to storage and processing points. All of the storage and processing activities for these commodities do not fall under the control of GOTPC. All bulk silo storage capacity is provided by the General Company for Investment in Elevators and Seed Stations. This company reports directly to the MSIT.

In addition, all feed and wheat by-products are turned over to the General Organization for Fodder which reports to the MAAR. This results in a duplication of accounting and monitoring activities for Cereals as it moves through their marketing and processing channels. In the case of wheat, the accountability for wheat changes hands when wheat is placed in silo storage, when it is taken out of storage, when it is milled and when it is baked. In some cases, there are silos, flour mills, and bread baking facilities all located next to each other thus resulting in diluted control and duplication of effort all at the same place.

This duplication of effort may not seem excessive when compared with marketing channels dominated by private firms; but one of the

reasons for displacing private firms by public operation of these various marketing and processing functions is to capture the advantages possible from integrating marketing and processing functions and combining these advantages with any benefits occurring from economies of scale and economies in administration.

Unfortunately the team was not able to quantify the costs or the potential savings from an improved organizational structure which follows more closely the functional path of each commodity through its marketing and processing channel. It is sufficient for this assessment to call attention to this apparent problem and the opportunity available to the SARG to carry out its stated objectives in a more orderly and efficient fashion.

2.3.4 Infrastructure Related to Cereals

2.3.4.1 Roads

The primary road system in Syria is good as far as commodity marketing is concerned. This is complimented by a secondary road system that is well developed and adequate for commodity marketings. This assessment is supported by detail maps readily available in Syria. Although some areas are served by roads that would be considered primitive, so many roads have been recently built and improved that the road transport network is not considered a bottleneck in the marketing of agricultural commodities.

Many feasibility studies have been done for the Syrian government concerned with road transport so that an abundance of relevant information is available. Some of this information is summarized below.

Road transport rates are fixed by the Government but adjusted regionally to local conditions. In the Hassakeh mohafazat the following rates recently were in effect:

Short distance	Long distance
0 - 1 km SP 4.50 per ton	0 - 50 km 12 p per tonkm
1 - 5 km SP 5.75 per ton	50 - 100 km 10 p per tonkm
5 - 15 km SP 6.25 per ton	100 - 200 km 5.5 p per tonkm
16 - 25 km SP 6.75 per ton	200 - km 4.4 p per tonkm

To these rates were added 30% if no return load could be acquired and 20% if the road was not paved. During good crop years the farmers may have to pay an additional 25-50% to get any trucks at all and even more if road conditions are poor.

According to a special agreement between the Cereals Office and the labor union, the Cereals Office in the Hassakeh mohafazat paid SP 3 per ton for loading and unloading respectively of their own truck. Farmers frequently have to pay twice this amount or

even up to SP 10 per ton during the harvesting season.

Information on vehicle operating costs for medium and heavy vehicles is readily available. Medium refers to a Mercedes 1924 or similar two-axle six-wheel diesel-powered truck with a recommended payload capacity of 10 tons. Heavy refers to a Mercedes 1924 or similar with trailer, four-axle fourteen wheel diesel-powered combination vehicle with a payload capacity in excess of 20 tons. Road freight costs are approximately SP 0.36 per ton km. for short distances and approximately SP 0.10 for long distances. These rates agree with calculated costs of operation and appear reasonable in practice.

2.3.4.2 Railways

Current railway freight rates applied by the Syrian railways are readily available. The rates for long distance transport range between SP .0.04 and SP 0.06 per ton km. It would be reasonable for the railway to be used for long distance grain transport to reduce costs of transportation and to reduce the number of heavy vehicles on the roads, however, it was cheaper in 1979 to truck grain direct from the northeast to Damascus because it is necessary to shift to trucks anyway at Homs. In 1976 270-280 thousand tons of grain were transported on the railway and in 1977 60-70 thousand tons in bulk or bagged.

The Railway administration at present has 250 bulk wagons with a payload capacity of 55-60 tons each and a loaded gross weight of about 80 tons. The trains on the stretch Quamishliye-Aleppo can have a gross weight of 2,000 tons corresponding to 25 wagons and on the stretch Aleppo-Lattakia 1,400 tons corresponding to 18 wagons.

South of Aleppo the railway capacity is only 60 ton wagons gross or 40 tons per 1,000 tons net per 25-wagon pulled by two light locomotives. The railway stretch Homs-Damascus is expected to be completed in three years and is at present almost completed to the phosphate mines between Homs and Palmyra. Maps of the railway network are readily available in Syria.

The silo discharge facilities can fill a bulk car in 15 minutes but difficulties have been encountered in arranging for cars and in the general coordination of transport between discharging and receiving stations.

No connections exist between the silos and sites near the Turkish border and the Turkish railway along the Syrian border. This railway has not been used for Syrian grain transport, partly because of the administrative inconvenience with border crossings and partly because of the high Turkish freight rates.

According to the Railway administration the present railway capacity for bulk grain transport from the Hassakeh region to the coastal regions is about 3,500 tons per day.

2.3.4.3 Grain Silos

The grain silo system has been well described elsewhere. Only a summary of capacities and capital investments will therefore be included in this report. A first contract was concluded in 1971 for a total silo storage capacity of 300,000 tons and an additional 470,000 tons was added in 1976 at Tartous.

The total silo capacity has since been increased to 630,000 tons and is distributed by mohafazat as follows:

<u>Mohafazat</u>	<u>Flat storage</u> (1000 tons)	<u>Silos</u>
Qamaishli	99	200
Deir-ez-For	1.5	U.C.
Araka	22	50
Aleppo	180	100
Idleb	4	U.C.
Lattakia	34	40
Tartous	-	U.C.
Hama	75	70
Homs	108	50
Damascus	8	100
Dar'a	10	U.C.

The silos are all equipped with grain handling facilities which can nominally handle 480 tons per hour.

The cleaning capacity at the silos however, is rated at only 120 tons per hour but is assumed to take place also during the night. The reception of grain may not run so smoothly that 100% of the reception capacity can be utilized continuously. During the harvesting season it is occasionally necessary to receive and discharge grain simultaneously. For these reasons it is therefore assumed that only 50% of the nominal reception capacity or 240 tons per hour can be utilized under practical conditions.

The reception capacity assumed under practical conditions cannot be efficiently utilized with bag delivery but presupposes bulk handling and reception of grain. According to investigations made, two men can empty bags into the hopper with a maximum capacity of 20 tons per hour or with two hoppers 480 tons per day.

The railway transport capacity from the Hassakeh mohafazat to the coastal regions of Syria is some 3,500 tons of grain per day or in 75 days 262,500 tons. The present railway transport capacity

thus appears to be sufficient--540,000 tons can be forwarded in 154 days.

An efficient utilization of the regional silo plants presupposes bulk reception of grain. Local grain collection facilities should serve the purposes of receiving bagged grain, of weighing and analyzing the grain in order to pay the farmers expeditiously and to discharge the grain in bulk to the central silos. In addition they should be located and designed with a view to minimizing system costs for handling, storage and transportation of grain. They should also provide an appropriate level of service to the farmers in terms of time required for disposal of the grain.

Temporary storage of grain would continue to be required at grain collection centers in order to provide for proper planning of onward transportation. Pre-cleaning of received grain at the centers might be recommended on the basis of experience gained so far at the central silos. In the past, the grain delivered at the silos contained such a high level of impurity that the silo cleaning capacity becomes a limiting factor for efficient utilization of the silo. Pre-cleaning would also reduce the cost of transportation to the central silo.

Provisions should be made at the collection centers to receive bulk grain deliveries since this is a natural adaption to presents harvesting technology in Syria. This is especially true for the larger collection centers. There are several disadvantages with continuing to handle only bagged grains. Higher storing losses occur, transportation and handling costs will be unnecessarily high and the full storage and handling capacity of the silos cannot be utilized.

Bagged grain should continue to be received at the regional silos during the transition but a gradual increase of bulk deliveries directly to the big silos would rapidly increase the efficiency of operating the silos.

It has been determined in previous studies that both bulk reception and silo storage capacity in the Hassakeh mohafazat are insufficient to cope with future volumes of purchased grain expected. Additional storage capacity is required but apparently a study of the optimum location and type of storage to build has not been made. Syria is at a decision point where storage capacity is going to be increased but its type and location still needs to be determined. On the basis of this teams assessment, there is need to conduct such a study in production and consumption of grain expected and given the road, rail and marketing requirements of the consumption centers.

Existing feasibility studies for additional grain storage capacity have already been made but the studies reviewed by this team did not take into consideration the other marketing functions related to grain marketing nor adequately consider the existing

infrastructure such as storage investment and operation costs of alternative types of storage such as facilities for bagged grain, flat storage or silos, and the transportation costs between surplus producing and deficit consuming areas. Such a study would be a straight forward economic study and would utilize existing and projected information in a linear programming formulation technique. Such a study is proposed as a possible project for future study. What is strongly recommended is that such decisions not be made on the basis of an individual isolated facility using such success criteria as profit ratios or internal rates of return based on arbitrary price values which are the result of government intervention into the pricing marketing sector.

2.3.5 A Word About Plans

In the process of assessing the marketing of Cereals in Syria, several annual plans for 1978 and 79 were provided by the SPC for review. The plans reviewed were prepared by the GOTPC (1979), the General Company for Mills (1978), the General Company for Baking (1978) and the General Company for Elevators (1978). Although each of the plans differ in format, they generally cover the following topics. (1) A statement of the purposes and goals for the organization or company. (2) A written summary of organization or company attainments last year compared with planned activity including explanations for over or under attainment of targets. (3) A written statement of the plans or targets planned for next year with respect to volumes to be handled, sales, operating costs, manpower and equipment utilization. Curiously enough, most plans include a statement on profit (or loss) made last year and planned for next year. (4) Finally, each annual plan is supported by tabular material showing the actual levels of attainments for last year and the planned targets for next year and an indication (amount or %) of the planned change in level of activity.

Although the annual plans are felt to provide much useful information that previously was unavailable to decision makers in the government, the variety in format detracts from their usefulness. For this reason, the SPC is attempting to standardize the format and has issued a "plan for annual plans" to all ministries and organizations. From the assessment teams point of view, we were interested to see if any of the information provided in the annual plans would be useful as performance indicators with respect to marketing and especially as an indication of how well the functions of marketing were being handled. Unfortunately very little in the plans provide any indications of performance. Although a statement concerning profit or deficit is usual, all costs and subsidies are not indicated in the material provided to the marketing assessment team. A simple statement on "profit" or, surplus or deficit by itself does not necessarily indicate how well a particular marketing function is being carried out, or the effectiveness of an organization or company in implementing a particular policy of the government.

2.3.6 Assessment Conclusion and Recommendations for Cereals

The purpose of this section is to summarize the findings of the assessment, point out problems observed and to make recommendations for alternative projects and policy changes for consideration in the next five year plan.

The Marketing of cereals in Syria is in a state of rapid transition. Some elements are very modern with the recent construction of new facilities while other elements are being performed in a totally traditional manner. Good roads, bulk handling and storage facilities and new flour mills exist as examples of modernity while some cereals are still transported by animal power, carried in bags, stored in primitive facilities and processed using primitive and antique methods. Many changes are needed in order to modernize cereal marketing in Syria but most of the changes needed are already present in some form and need only to be extended to cover more of the marketing volume.

The recommendations in this section suggest alternative projects, studies and policy changes which would contribute to increasing the productivity and efficiency of marketing for cereals in Syria.

Market Policy. Marketing is a complicated process. In a free market, prices play a vital role in organizing and coordinating the various functions that the market must provide. Competition serves as the regulator on profits and those who consistently make wrong decisions go out of business.

In a more regulated economy such as Syria, free prices and competition are not intended to be used as regulators, therefore, the role of government in performing these functions becomes very important. More attention needs to be given to this in Syria and the functions that need to be performed by the marketing system needs to be better understood. This means that more rules and regulations are necessary in order to improve the efficiency and orderliness of the market but care must be taken to see that legitimate and desirable services are not eliminated in the process of regulating and controlling the market as the public sectors role in marketing is expanded. There is a need to coordinate the various functions of marketing for cereals procurement, storage, processing and distribution. Improved coordination would result in more efficient use of personnel and facilities and would facilitate the development of more orderly planning. This is difficult to do with so many different agencies responsible for performing the required marketing functions. Since they are all government, in one way or the other, there is no need to build in a competitive framework, in fact, competition between different government agencies results in wasteful use of limited resources. Therefore, it is recommended that careful study be given to the performance of the various stages of marketing for cereals and that reorganization of responsibilities for the various stages be carried out when it can be shown that efficiency or performance can be improved.

Infrastructure. Although the basic elements for handling grain are present in Syria and new facilities are rapidly being added, some changes

are needed. Many of these are in the process of occurring but in order to avoid costly mistakes, much more in the way of cost information and analysis are needed. It is the view of the Assessment team that decisions concerning the type and location of facilities has been on a piece meal basis and not determined on the basis of the overall picture.

One obvious change that is needed to improve marketing efficiency of wheat is to change to bulk handling methods. This change is already in process and should result in substantial savings in costs from the point of harvest to final processing stage. A key element needed in changing to bulk handling is local storage designed to accept bagged grain from small producers to start the bulk handling process. The need for this additional storage is clear, but the specific size, number and location needs to be carefully studied.

It is recommended that a transportation analysis of the cereals trade be done taking into consideration such factors as: (a) existing facilities, (b) existing and projected production of cereals by region and (c) existing and projected consumption demand. The study would consist of a linear programming analysis incorporating production costs, storage and transportation costs and consumption demands and would determine optimum use of existing facilities and indicate the optimum type and location for new facilities to be added.

The analysis should also indicate alternative carryover policies for Syria. Although Syria has a deficit in most cereals, it must export at some times due to lack of storage only to import the same commodity at a later time. This, in fact, may be the most efficient, least costly procedure, under some circumstances but not in all cases.

Intellegence--Research and Training. It is the view of the marketing assessment team that a better understanding of the functions to be performed by any marketing system is needed in Syria. The role of these necessary function needs to be better understood especially by policy makers. Consumers generally expect certain services to be performed by the market and usually must pay for these services, one way or the other. Low consumer prices are a desirable goal from the consumers' point of view, but if inordinately low, the quantity of the product demanded may be so great that in order to distribute the existing supply, means other than prices must be devised to ration the product. Furthermore, such low prices distort use patterns and increase waste. This may also result in long consumer lines or in running out of the product early in the day. Waiting in line can be considered a cost and certainly an inconvenience and given the choice, consumers may be willing to pay a higher price in exchange for not being inconvenienced. A number of other examples could be elaborated but this is sufficient to recommend that an improvement is needed in the awareness of the functions of the marketing system and especially this needs to be made known to policy makers.

Increased awareness of the role of marketing needs to be backed up by more marketing studies which determine the costs associated with alternative marketing procedures. Therefore, it is recommended that specialized agri-

cultural marketing research or study units be created to develop this information.

Another factor that appears to have not been given sufficient consideration in the past, is market testing of products produced by the public sector. This is very important in an economy where price is not allowed to be the communicating link between producer and consumer. The result of not testing consumer acceptance may be the building of facilities which can only be partially used thus wasting critically short development resources. In conjunction with these types of consumer acceptance studies, it is also important to formulate policies, especially price policies that will encourage consumers to adjust consumption patterns to conform to those desired by the government.

Price Policy. Prices need to reflect realistically the supply and demand situation. It is beneficial to the economy to have price stability and to avoid when possible, wild gyrations in prices because these are very disruptive to the economy. Rigid prices that do not correspond to changes in demand and supply also are disruptive because they convey incorrect information to both producers and consumers and results in waste and costly demands on the treasury. Although this recommendation relates to all agricultural products, it is especially important for the cereals because the subsidies on wheat and barley have been very costly.

Improved Planning. Much progress has been made in planning techniques in Syria. The development of the annual plan as an update for the five year plan has been a major improvement in the plan implementation process. However, it appears that the planning process could be further improved. First by standardising the formats for preparing annual plans and second by including more in the plan which indicates levels of market performance. Most of the annual plans that we saw did include information on "profits" and "losses" but these have little meaning when subsidies are not considered and in fact do not in any way indicate how well a particular company or organization may be performing the marketing function it is supposed to perform.

For example, the General Company of Mills is experiencing a very large and growing deficit because of the government policy to provide bread at a subsidized price to consumers. The size of this deficit is no indication of the efficiency with which the General Company for Mills is carrying out its function because there is nothing to keep the inefficiencies of other companies being passed forward (in the case of the GOTPG or the General Company for Elevators) or backward to them (in the case of the General Company for Bakeries).

The conclusion of the assessment team is that although the plan preparation may be a very worthwhile exercise it does not provide the information required to monitor the efficiency of performance of the marketing function at various locations in the marketing channel.

2.4 FOOD PROCESSING

The food processing industry in Syria, as is the case in many developing countries, has lagged many other aspects of development. Most of the commercial food processing in Syria is done by the public sector. The General Organization for Food Industry (GOFI) has the official responsibility for developing this sub-sector of the economy. It consists of 18 companies and 21 plants that produce about 30 main items. The largest activity is cotton seed oil. This is produced by four separate companies which produce vegetable oil, cotton seed cake and other by-products such as cotton seed hulls, soap and linters. These companies operate six plants. There are four fruit and vegetable canning plants and three dairy product plants. There are two factories to produce beer, two to produce alcoholic beverages, one for dehydrated onions, one for peanuts, one for biscuits and chiclets, and one for spaghetti. Sugar, meat, poultry, cereals and tobacco are all processed in other organizations. There are three fruit and vegetable canning factories under construction due for completion in 1980, and in 1982 a new vegetable oil plant will be completed.

State monopolies process and handle vegetable oils, biscuits, dehydrated onions and sugar. There are two small private factories that can fruits and vegetables, but 70 percent of the output comes from the public sector. There are no dairy factories in the private sector but most of the products are produced on small scale operations in the private sector. Officials in food processing believe there is plenty of capacity in dairy processing as the current plants are not used to capacity; however, different price policies and other operational policies could change that situation.

An official stated that most food processing factories are profitable but there are some political prices in the system. They plan for a profit of 10 percent return on investment for the entire company. This is approximately the long term profit rate experienced by private U.S. companies for this type activity.

From the annual plan of GOFI and supplemental information the following measures of performance were obtained: Sales of GOFI in 1977 were L.S. 284,725,000; gross margin over materials cost was 22%; gross margin over raw materials cost was 45%; gross profit on sales was 8.4%; 1978 plan for gross profit was 4.8% on sales of L.S. 353 million (Table 2.4.1).

Available information did not permit a detailed financial analysis of this organization and its 18 companies. It appears that a rigorous annual financial analysis is not a high priority for this or other government commercial organizations. The annual plan concentrates on volume of raw product needed and expected sales to be transferred to other sectors (Table 2.4.2). Export sales were L.S. 37 million in 1977 and expected to be L.S. 55 million in 1978. Main export items in order of value were: pistachio nuts, cotton linters, dried onion, canned fruits and vegetables (Table 2.4.2a).

Table
2.4.1 General Organization of Food Industries (GOFI) Annual Report.^{a/}

Item	1977 Plan	1977 Actual	1978 Plan
		<u>LS (000)</u>	
Sales and Revenues	296,502	284,725	352,777
Raw materials cost	151,993	(154,872)	(179,690)
Total materials costs	216,679	215,914	280,079
Wages and Salaries	35,747	36,432	44,640
Depreciation	<u>8,619</u>	<u>8,410</u>	<u>11,239</u>
Total cost	266,909	260,756	335,958
Gross profit reported ^{b/}	24,593	23,969	16,819
Gross profit on sales (%)	10	8.4	4.8

^{a/} Source: Annual Plan, GOFI, 1978, with supplemental data provided by official of GOFI

^{b/} Gross profits includes profits, taxes, and reserves for expansion.

Table 2.4.2 General Organization of Food Industries-Sales

Item	Actual-1977						Plan-1978					
	Domestic			Export			Total			Domestic		
	Tons	S.L. (1000)	Tons	S.L. (1000)	Tons	S.L. (1000)	Tons	S.L. (1000)	Tons	S.L. (1000)	Tons	S.L. (1000)
Veg. Oil	24,370	40,228	-	-	24,870	40,228	22,644	36,626	-	-	-	36,626
Hydro. Oil	5,716	16,576	-	-	-	16,576	6,500	17,750	-	-	-	17,750
Cotton seed cake	102,400	52,880	-	-	-	52,880	102,540	51,984	-	-	-	51,984
C. S. hulls	36,909	8,821	-	-	-	8,821	34,500	8,246	-	-	-	8,246
Linters	601	191	15,984	7,664	16,585	7,855	160	132	17,179	7,353	17,339	7,475
Soap	6,375	16,772	-	-	-	16,772	6,776	19,913	-	-	-	19,913
Tomato sauce	2,717	7,703	1,312	3,016	4,093	10,719	2,100	6,717	3,700	12,262	5,700	19,080
Peas	670	1,779	93	273	863	2,052	960	2,656	40	108	1,000	2,689
Apricot Jam	1,099	3,895	236	910	1,335	4,805	1,550	5,979	50	193	1,600	6,172
Industrial Ice (1000 pieces)	249	249	-	-	249	249	375	375	-	-	375	375
Sterilized Milk	4,828	5,518	-	-	4,828	5,518	6,500	8,173	-	-	6,500	8,173
Yoghurt	13,724	12,640	-	-	13,724	12,640	17,050	19,186	-	-	17,050	19,186
Conc. Yoghurt	750	2,524	-	-	755	2,524	885	3,117	-	-	885	3,117
Cheese, white	710	2,684	-	-	715	2,684	825	3,122	-	-	825	3,122
Butter	850	5,456	-	-	850	5,456	1,200	7,740	-	-	1,200	7,740
Ghee w/cream	1,519	10,799	-	-	1,519	10,799	1,977	13,997	-	-	1,977	13,997
Biscuits (cookies)	5,049	18,050	513	2,021	5,562	20,071	5,943	25,084	670	2,770	6,613	27,859
Bon bons	191	856	-	-	191	856	270	1,489	-	-	270	1,489
Chocolate	192,5	2,059	0.5	6	193	2,065	235	2,626	15	115	245	2,741
Beer (000 liter)	5,363	16,979	-	-	5,363	16,979	9,600	30,953	-	-	9,600	30,953
Alcohol (000 liter)	440	4,432	5	42	450	4,474	550	6,259	25	250	575	6,509
Wine (000 liter)	180	1,014	2	6	182	1,020	220	1,617	-	-	220	1,617
Brandy (000 liter)	79	552	-	-	79	559	75	660	-	-	75	225
Some (000 liter)	202	627	-	-	202	627	252	627	-	-	600	1,950
Pistacio nut	2,066	5,853	512	1,632	2,578	7,485	1,894	6,564	989	2,953	2,883	9,518
Pistacio nut in hull	829	1,913	3,854	10,608	4,583	12,521	820	2,160	2,884	8,075	3,604	10,235
Dried onion	5	30	1,105	6,630	1,110	6,660	5	30	2,327	13,962	2,332	13,992
Canned F. & V.	1,338	4,109	1,679	4,288	3,017	8,397	2,004	5,410	3,353	5,231	4,357	12,641
Total	-	245,199	-	37,996	-	282,295	-	292,821	-	55,277	-	347,998
Gross profit (sales-cost of raw materials)							5.1%					

Source: Annual plan, Gen. org. Food Processing, 1977.

Table 2.4.2a. General Organization of Food Industries-Sales
Plan 1977

Item	Domestic		Export		Total	
	Tons	S. L. (1000)	Tons	S. L. (1000)	Tons	S. L. (1000)
Veg. Oil	19,561	34,878	-	-	19,561	34,878
Hydro. Oil	6,000	17,400	-	-	6,000	17,400
Cotton Seed						
Cake*	39,726	48,225	-	-	39,726	48,225
C.S. hulls*	32,600	7,773	-	-	32,660	7,773
Linters	80	45	17,099	7,781	17,179	7,826
Soap	6,902	18,102	-	-	6,902	18,102
Tomato Sauce	900	2,690	5,000	14,600	5,900	17,290
Peas	880	1,130	-	-	880	1,130
Apricot jam	1,800	5,899	-	-	1,800	5,899
Canned F.&V.	898	2,598	3,317	7,906	4,215	10,504
Industrial Ice (1000 pieces)	375	275	-	-	375	375
Sterilized						
Milk	5,200	5,315	-	-	5,200	5,315
Yoghurt	11,500	11,275	-	-	11,500	11,275
Conc Yoghurt	835	2,910	-	-	835	2,910
Cheese, white	825	3,403	-	-	825	3,403
Butter	1,200	7,890	-	-	1,200	7,890
Ghee w/cream	1,040	12,000	-	-	1,040	12,000
Biscuits						
(cookies)	6,087	19,660	763	2,751	6,850	22,411
Bon bons	280	1,318	60	288	340	1,606
Chocolate	230	2,390	10	100	240	2,490
Beer (000 liter)	630	12,852	-	-	630	12,852
Alcohol						
(000 liter)	1,312	7,353	150	1,500	1,462	8,853
Wine (000 liter)	521	1,646	-	-	521	1,646
Brandy (000 liter)	-	-	-	-	-	-
Soma (000 liter)	938	490	200	500	1,138	990
Pistacio nut	1,269	3,900	442	1,072	1,711	4,972
Pistacio nut in hull	723	1,650	4,374	11,172	5,097	12,822
Dried onion	-	-	1,610	9,660	1,610	9,660
Total		233,067		57,330		290,497

2.4.1 Dairy Plant Performance

An example of financial and economic data that can be assembled to evaluate performance is that related to dairy products processing. The Damascus Dairy Plant had revenues of over 18 million L.S. in 1977. It had gross profit on sales of 14.4 percent, a very high rate for this type of business. For this business it appears that either consumer prices were too high or producer prices too low. The largest items of sales were yoghurt and ghee. Third was sterilized milk (Table 2.4.3).

Marketing margins for dairy products were relatively low. Most milk and yoghurt had a retail markup over wholesale of less than 15 percent. Many sales in Syria are private and are direct from farmers to consumers. Retail prices and wholesale to retail marketing margins varied over Mohafazats and for the same Mohafaza over time (Table 2.4.4). Examination of these data suggest a market oriented industry despite officially established prices. These data have the same type of variability over geographic areas and over time that one might observe in a market system without price control except the movements appear a little more erratic. Marketing margins were lowest on milk and fresh yoghurt, and highest on cheese. In the processing plants, profits have been highest for fresh yoghurt, cheese and milk in that order. From the above it appear that the private sector is charging less for marketing (compare Tables 2.4.3 and 2.4.4--26.3% vs 11.5% milk, 8.3% yoghurt and 15.7% cheese).

2.4.2 Other Plants

It was not feasible to visit all of the plants being operated by GOFI, but those that were visited appeared to be reasonably efficient, on day to day activities. Some reported problems of procuring raw materials. Apparently this is a bigger problem in the food processing outside GOFI. For example, the modern sheep slaughter plants in Damascus and Aleppo are operating at considerably less than capacity, as well as the poultry plant in Damascus, because of some administrative or pricing problem that discourages full utilization. On the other hand, the lentil plant in Aleppo operates three shifts, seven days a week and appears to be very efficient.

Additional fruit and vegetable processing is already planned. A major problem will be getting raw materials to keep these plants operating a long season. Some raw products from neighboring states might be a feasible means to lengthen the season. A comprehensive study of market demand for food processed products and the feasibility of various food processing items needs to be done. Lack of availability of many basic processed items and the availability of these items in neighboring Lebanon suggests that there is considerable need for expansion.

2.4.3 Other Studies

Other reports and studies available mention the old equipment and near obsolete plants such as the Damascus cotton seed oil mill that has frequent work stoppages due to break downs. There was also a report that stated the

Table 2.4.3. Financial Analysis of Dairy Plant, Damascus, Syria 1977.

Item	Quantities (tons)		Sales/Cost LS (000)	
	<u>Plan</u>	<u>Actual</u>	<u>Plan</u>	<u>Actual</u>
<u>Sales</u>				
Sterilized milk	2,200	2,470	2,080	2,964
Yoghurt	5,500	6,050	4,950	5,445
Conc. (dry) yoghurt	500	450	1,800	1,620
White cheese	400	350	1,680	1,260
Butter oil (ghee)	800	800	6,000	5,800
Butter	600	155	4,050	975.5
Total Revenue			20,570	18,064.5
Value of product at factory			19,747	17,356.0
<u>Costs</u>				
Raw materials			14,043	12,016
Auxillary materials			142	81
Packaging materials			903	432
Energy and fuel			258	217
Other (interest, insurance, etc.)			589	568
Sub-total			15,935	13,315
Salaries and wages (6.1% of sales)			1,345	1,100
Depreciation (1.9% of sales)			266	345
Total Costs			<u>17,540</u>	<u>14,760</u>
Gross Profit			2,201	2,596
Gross Profit on Sales			10.7%	14.4%
Gross Margin (Sales-raw material cost)			22.5%	26.3%

Source: GOFI

Table 2.4.4. Prices and Price Spreads for Dairy Products by Mohafazat, Annual Average, 1977.

	Fresh Milk		Fresh Yoghurt		White Cheese	
	Retail	Wholesale	Retail	Wholesale	Retail	Wholesale
	Piasters kg	Retail difference %	Piasters kg	Retail difference %	Piasters kg	Retail difference %
Damascus	130	11.5	145	8.3	700	15.7
Aleppo	132	9.1	165	18.2	750	13.3
Homs	112	8.9	133	15.0	614	10.4
Hama	112	11.6	133	6.0	644	6.8
Tartous	106	12.3	115	8.7	634	9.3
Latikia	100	5.0	120	12.5	683	12.2
Idleb	121	10.7	160	12.5	642	10.7
Al Rakka	108	5.5	158	16.5	645	15.5
Deir E Zor	96	8.3	123	8.1	692	27.7
Al Hasakeh	125	-	134	7.5	622	-
Sweida	120	4.2	125	8.0	625	4.3
Dar'a	116	5.2	123	8.9	638	11.8

Prices and Price Spreads for Damascus by years

Year

1977	130	11.5	145	8.3	700	15.7
1976	120	16.7	142	12.0	665	22.6
1975	100	10.0	125	8.0	663	32.1
1974	95	10.5	110	10.9	477	8.2
1973	83	14.5	96	9.4	417	8.1
1972	69	-	91	-	374	-
1971	68	-	84	-	379	-
1970	59	-	72	-	305	-

Source: Central Bureau of Statistics, Statistical Abstract.

average plant manager had a tenure of only 9 months in Syria in recent years. The high turnover appears to be due to low pay, lack of authority to make the necessary decision, lack of adequate training and experience, and to political appointments.^{1/}

Despite these problems the GOFI as a whole and its individual companies seems to be performing day to day operations reasonably well. It was difficult to evaluate long range planning and overall management, but the organization appears to be moving in the direction necessary to deal with longer term needs.

2.4.4 Facilities

There was no attempt to evaluate specific facilities. It appears that the plans for three more canning plants and a new vegetable oil plant are generally in line with expansion needs, and in the case of vegetable oil--replace some obsolete, inefficient equipment. Steps need to be taken to solve problems of lack of fuller utilization of plants. These include adding more lines and in some cases, offering a price as high as the private trade on raw materials.

There were suggestions of extra trucks needed during peak harvest seasons by several of the agricultural marketing organizations. This is not an uncommon problem in agriculture anywhere in the world. Critical problems in timing of trucks for both input and products have been experienced. Except for the peak demand problem truck transportation appeared to be satisfactory and at reasonable cost. It was approximately 5 percent of total costs of GOFI. This is substantially less than the cost of this item in the United States where distribution covers longer distances. No doubt, more trucks are needed, but there was not sufficient study of this problem to offer detailed recommendation. A major transportation study is currently underway (July, 1979 by Louis Berger, Inc.)

2.4.5 Onion Dehydration, Plant - Case Illustration

Discussion of facilities and operational detail of each facet of the food processing industry is unnecessary for the purpose of this assessment, but this case is discussed to provide understanding of how the GOFI operates within the SAR legal, economic and management framework. It is not claimed that this plant is typical; all plants have some unique features, but onion dehydration is chosen to illustrate management and policy problems and opportunities.

The onion dehydration plant located in Salamie (Hama Mohafaza) was completed in 1970. It is a single product plant with 650 mostly seasonal employees that operates up to 210 days per year (50 are permanent employees). It produces dehydrated onions in powdered, minced, sliced and cubed forms in five kg. packages packed in a 15 kg. box for export. The main volume is sold to EEC and USSR and used mostly for onion soup and further processing.

^{1/} These were administratively confidential reports and cannot be directly cited.

Raw Materials

The plant obtains 70 percent of the 20,000 tons of white onions annually in a radius of 50 km. of the plant. A small amount comes from 150 to 200 km. They process during harvest and continue to process about half of the volume from storage to lengthen the season of operation. These onions can be stored up to 180 days. The plant management works with the Ministry of Agriculture and Agrarian Reform (MAAR) in obtaining local production, and onions are "locked" into the rotation by order of the Minister of Agriculture. Farmers are provided with the necessary purchased inputs for onion production, plus loans for labor expenses. No interest is charged and transportation is paid from the more distant areas. The first year of operation, 1970, total production was 500 tons of onions. It has increased to 23,000 tons in 1977. The plant appeared to be slow in building volume up to capacity. Producers seldom meet their goals on yields of 2 tons per dunum. In 1977 the average yield was 1.5 tons per dunum.

Production is supposed to be exclusively for processing but if the fresh market is higher than the processing price, some of the product goes to that market. Technically this is illegal, but it is understood that its going to happen. This illustrates a key management deficiency in the system. Provisions need to be made to formally legalize this practice and its limits. The plant has contracts with the local cooperatives, but if the producer sells in the fresh market the Peasants Union (that controls the cooperatives) has no role and no revenue from those sales.

Fresh market sales are not in the best interest of the plant, but likely benefit the economy, consumers and certainly the producers. Farmers in the area produce wheat, barley, cotton and many kinds of vegetables. They are all required to produce onions. It would appear that a contract that specified a minimum and a maximum volume of onions committed to the plant with sufficient range to allow accomodation of the fresh market sales would be a preferable operational contract. This would legitimize a certain maximum amount of fresh sales in any given crop year and get closer to maximization of total profit or benefit to the entire onion system. Currently, producers and the plant manager have very little flexibility to adjust to changing domestic and international market conditions. Apparently there has been no formal analysis of the total economic situation of the system. This is a clear case of mutual dependence of producers and the plant, but conflicts arise when the fresh onion market is high and joint profit sharing and incentives to make the entire operation profitable is a logical approach to obtaining high efficiency for the system. On the surface, the operation appears to offer less freedom and appears to be more exploitive of producers than a privately operated system. Under a private system, if producers did not like the price, they could at least use the land and labor for some other crop.

Plant Operation

In 1978, the plant paid 350 L.S. per ton (L.S. .35/kg) for onions delivered to the plant, plus some interest and transportation and other input subsidies. The average yield of dehydrated onion is 12 percent and the producer price was equivalent to L.S.2.92/kg of dried product.

Sales prices were 5 to 6 L.S. per kg. The manager was not able to provide financial statements or figures for total sales. This, he stated, was kept in Damascus, however, he explained some years they make a profit, it mainly depends on the highly variable international market. (Sales in 1977 were L.S. 6.63 million, all but L.S. 30,000 was exports, Table 2.4.2) He further explained that he has no flexibility to adjust to the market as do his competitors in Western Europe, but must operate essentially the same every year. This undoubtedly stems partly from the fact that onion production is "locked" into the crop rotation by MAAR, and as such, involves a planning horizon of several years; and the main adjustment is that provided by "illegal" sales by producers on the fresh market.

Onions are harvested by hand and lots of mixed qualities are delivered to the plant. The plant has very good stainless steel equipment. It was clean and appeared to be well managed, but cutting the ends of the onions is done by hand rather than mechanically to provide extra employment for the area. The manager claimed they produce a high quality product, and it did appear that was correct. The plant dehydrates about 10,000 tons during harvest and another 10,000 after harvest from onions stored on the premises after harvest. Harvest is about 2 1/2 months (from August 15 to October 30). Management is looking into alternatives of utilizing the plant in the off-season by adding other lines such as dried garlic, potato chips and dried lentil soup stock and onion soup stock. This appears to be a logical way of utilizing plant and labor more efficiently.

It would also appear to be a feasible alternative to consider lengthening the season of operation by trucking earlier and later produced onions from other areas, despite the transport cost. The marginal cost and returns of such an activity compared to the diversification of product lines, could be fairly easily analyzed. The key is primarily the available market and secondarily the economics of the viable alternatives.

Assessment

Like a number of other plants visited such as cotton seed processing, biscuits manufacturing, lentils cleaning and processing, the onion dehydration plant appeared well managed under the overall policy and local circumstances. The local employees seemed to have considerable pride and do a reasonably good job.

One set of problems that seems to be common to all of them is: (1) Management has little flexibility to change operations even where clear inefficiencies exist. (2) The enterprise is not sufficiently market oriented. Almost no indications were picked up that management was soliciting feedback from customers, or doing any systematic studies of market alternatives, nor was there any indication of any direct incentives to do so. (3) Absence of economic analysis exists on the profit or benefit of the enterprise and on alternatives lines, so that central decision makers who were preparing overall plans could evaluate performance and alternatives. The team did not see any evidence of enterprise accounting that would pin point where money was being made or lost, although we were told that this does exist.

Accounting seemed to be on a plant basis not on a product line, or on an enterprise or activity basis. (4) Performance standards and evaluation were few and almost absent in the case of standards to evaluate management or the entire operations. Some performance standards were begun in June, 1979. Norms for workers were established. (5) Excess labor and lack of labor saving devices and equipment were typical of most plants.

Considering its current state of development, Syria does not have a satisfactory amount of variety of processed foods available, or sufficient number of package sizes. Most of what is available in the stores that carry these items is imported. Being a small developing country there will always be a need to import a substantial share of its processed food because of scale economics and specialized technologies; but there are opportunities to substantially increase processed food output and improve nutrition, improve quality, add more variety to meals, generate more employment, and provide more markets for farmers in the next five years. Nationalization has discouraged private activity in this field except in very small businesses such as dairy products processing, olive oil production, bread baking, etc. Total investment clearly needs expansion, and trained management is difficult to obtain.

It is difficult to generalize concerning an organization with such varied activities; however, there is one thing all of its operation have in common and that is the need for capable plant management, technicians, and supervisors. Most of the employees are underpaid, salaries and wages averaged 13 percent of sales in 1977, attracting and holding capable people is a problem and is essential to an efficient food processing business. Comparison of salaries and wage expenses with businesses outside of Syria is difficult, but they appear low and are reportedly below neighboring countries. Currently the government is relying on regulations rather than pay incentives to maintain good management personnel. This appears to be a very short-sighted policy. Efficiency in food processing required capital, high technology and experienced and well trained management.

As a result of past policies most of the new capital for food processing will have to come from government unless steps are taken to foster private investment. Despite considerable new investment, expansion will likely fall short of needs during the next five year plan. As population and incomes grow (population 1980-8.9 million, 1985 - 10.8 million, 1990 - 12.8 million); and as more women enter the labor force, there will be substantial increases needed in food processing. (In the study team's judgement, at least 10 percent per year during 1980-85 just to catch up). The government share of food processing per capita was only L.S.32 or US\$8 in 1977. (This does not include meat slaughter, sugar, tobacco and cereals processing).

There are no international food companies operating in Syria. Joint venture operations with large food manufacturing companies could provide some of the technology and management not available in Syria to provide a wider variety of products.

2.4.6 Recommendations

Alternative A - No Basic Policy Change

Assuming continuation of existing policies, it will be necessary for the government to make most of the Syrian investments in food processing during the fifth five year plan. Food processing offers one of the best development opportunities as it generates both rural and urban income. It would appear desirable to plan to expand existing lines and add more variety. Specific studies will be needed to examine the feasibility, but expansion in vegetable processing and grocery manufacturing is bound to be needed in 1985 beyond current plans.

Alternative B - Expand Trade

It is recognized that a small country will always need to import some of its processed items because of the economics of scale and the economics of specialization. It likewise could expect to export some of its processed food products because the small domestic market cannot utilize all of the output of a particular items such as dehydrated onions.

To facilitate trade and to provide effective competition for the domestic public and private sector, a moderate import tariff without quantity and other restrictions is advisable. This serves as a protector of consumer interests and a constant upper limit on profits of government or private business. For most items, a maximum import tariff of 15 percent would be appropriate. In some cases a maximum of 25 per cent may be necessary to protect infant industries, but it should be on a fixed scheduled to be scaled down to 15 percent.

At least 5 percent of tariffs from processed food imports could be earmarked to improve the domestic food processing industry, with part of it going to research.

Alternative C - Expand Private Sector

Private companies can serve special needs and provide extra investment and capacity if encouraged. A clear policy as to the limits of government activity in food processing could stimulate the private sector to fill needs not being met by the current system. Even then, individuals are not going to be anxious to invest capital until it is clear his property is safe. Government loans for new facilities or even a lease of government owned plants to the private sector are alternatives that could increase output of food processed products.

2.4.7 Projects

(1) A comprehensive study of the market for processed food items is needed, and the feasibility of serving this market with domestic production and processing. No information was found that provides specific guides for decision makers in long range planning except feasibility studies for specific plants. For example, it would appear that there are many basic food items such as lentils, beans and chick peas that provide raw materials;

and especially perishable vegetables for off season consumption, for restaurant use and for specialized consumer trade even during season.

What is needed is some measures of demand and supply for specific items and groups of items and the related plant and production feasibility. Export markets must be included in this. Most plants of efficient scale will need to consider export possibilities.

(2) Management training programs, studies in plant efficiency and operation, and control would be very useful to the relatively inexperienced food processing management.

2.5 COTTON MARKETING

Cotton is Syria's most important cash crop, and until 1974 was the most important export product. Now it is second only to oil in foreign exchange earnings. Marketing of cotton has been the responsibility of the Cotton Marketing Organization (CMO) since 1965 when this activity was nationalized. Now only the state can buy seed cotton from producers. The purpose of CMO is to procure seed cotton, gin and market lint cotton and the by-products from ginning. Currently about 75 percent of lint production is exported and 25 percent is used by the Syrian textile industry. All cotton seed is transferred to the state owned company for vegetable oil processing. Control of the cotton industry by the State begins with issuing licenses to farmers for growing cotton and this control continues through the marketing system (Figure 2.5.1).

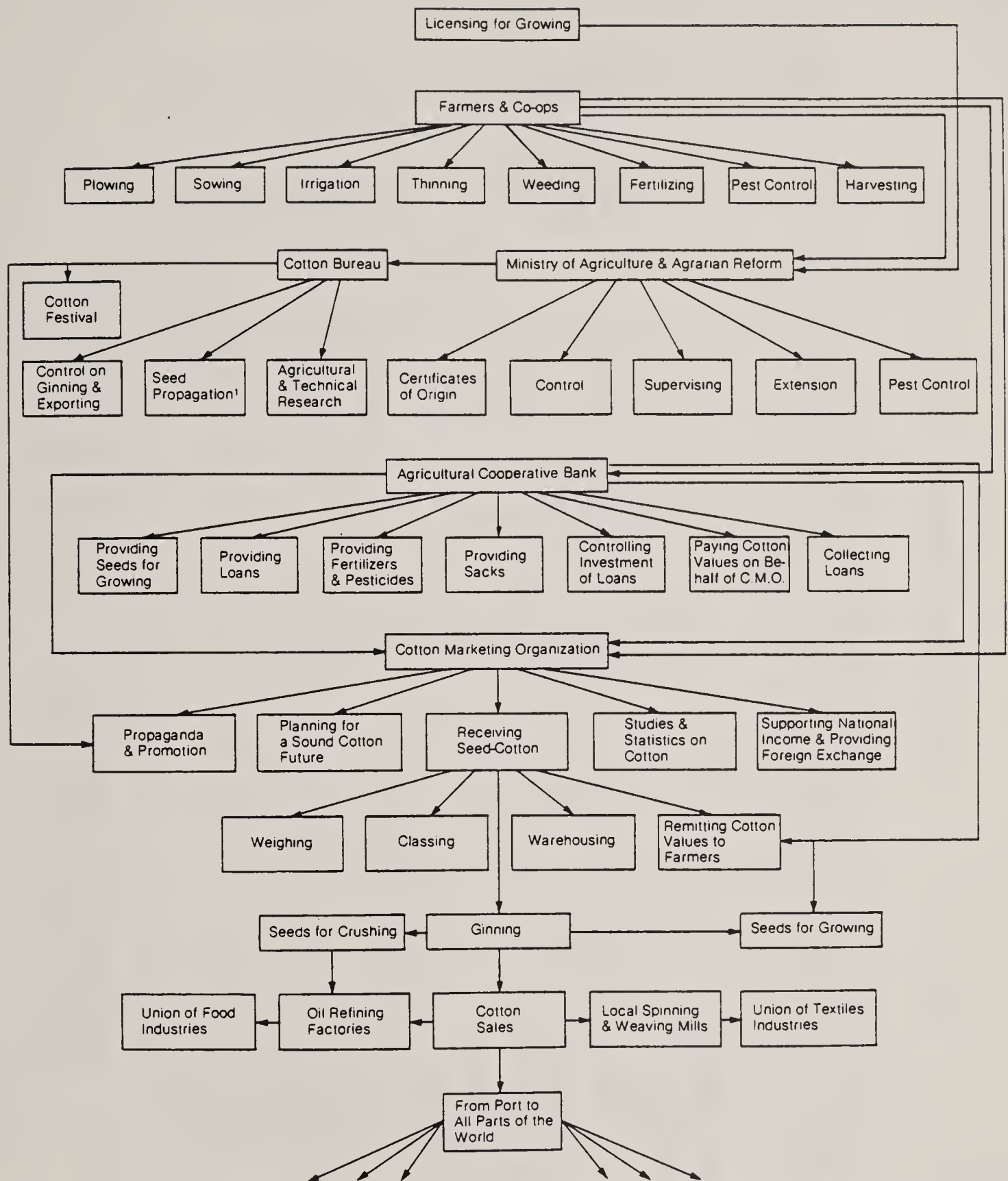
Plans are for domestic mills to use about 50 percent of the cotton output and export about 50 percent. The official plan is to increase output so that the export volume will remain about the same. Exports for the 1976/77 crop year totaled 678,000 bales and for 1977/78 were estimated at 533,000 bales (Table 2.5.1). China, Russia and Western Europe are the main export markets for Syrian cotton.

Cotton is an enterprise in which Syria has a clear competitive advantage in production and marketing. The product is profitable at all levels and it brings a favorable price in international markets. Partially because it is hand harvested, normally it is priced in international markets above average cotton of comparable grade and staple length, as indicated by being higher than Cotton Index A at Liverpool three out of four years (Table 2.5.2).

Actual cost of production comparison with other countries is difficult due to variation in land taxes and policies on input costs, etc. Available information suggests that Syria can compete with leading exporting countries. However, where enterprise competition on individual farms is concerned, cotton appears to have an advantage relative to other crops despite the fact that it is hand harvested. Evidence of the competitive advantage compared to other farm enterprises in Syria is that farmers are required by the Ministry of Agriculture to limit cotton production area even though prices paid to farmers for seed cotton have been below the level of international open market prices that reflect supply and demand. In other words, cotton competes strongly for farming resources in Syria. Coupled with efficient ginning and a favorable export market for Syrian cotton and if optimum allocation of resources is a goal, expansion of cotton area, and improved yield is indicated. This should increase total agricultural income and result in a more optimum use of resources.

Cotton production is located mostly in irrigated areas in the northern half of the country (Fig. 2.5.2). Syrian cotton production

Syrian Cotton from Farm to Port



¹Now the function of the Seed Multiplication Institute.

Table 2.5.1 - Syrian Cotton Statistics, Crop Years, 1971/78

Item	Crop Year (August-July)						
	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77	1977/78
(1,000 bales)							(est.)
Cotton-Supply and distribution							
Beginning stocks	20	40	45	50	150	240	125
Production	725	750	720	670	730	720	685
Total	745	790	765	720	880	960	810
Consumption	155	170	150	183	171	155	175
Exports	548	571	563	387	469	678	533
Ending stocks	40	45	50	150	240	125	100
Exports							
Country of destination							
China, PR.					216.2	129.3	128
Czechoslovakia					33.2	33.7	43
France					9.7	31.4	31
Germany, F.R.					2.0	33.0	34.
Italy					85.2	110.5	93.
Switzerland					8.1	27.4	27.
USSR					54.1	181.2	66.
Other					60.5	131.6	111.1
Total					469.0	678.1	533.1

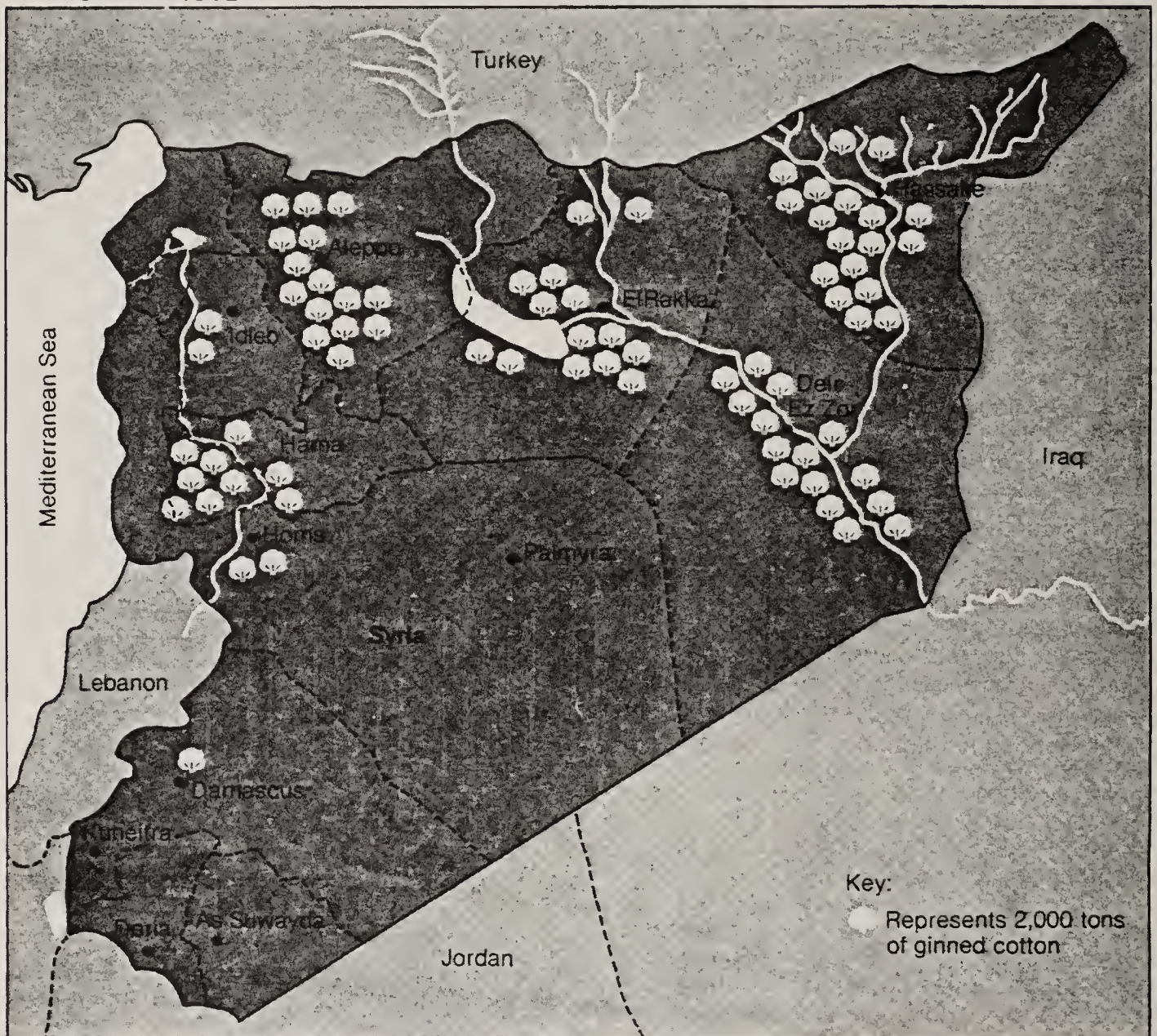
Source: Cotton-World Statistics, Quarterly Bulletin of the International Cotton Advisory Committee, October 1978. Vol. 32 Nos. 3 & 4, (Part II)
South Agriculture Bldg., Washington D.C. 20250, U.S.A.

Table 2.5.2 - Cotton Prices C.I.F. North Europe Quotations

Description	1975/76	1976/77	1977/78	Dec.7, 1978
	(U.S. Cents per pound)			
Syria S.M. 1-1/16"	68.48	85.41	64.23	80.85
Turkey Ismir				
St. 1 white 1-1/16" R.G.	61.55	88.49	66.22	82.00
U.S., Memp. Terr. S.M. 1-1/16"	71.33	82.33	64.74	81.00
Outlook Index A S.M. 1-1/16"	65.26	81.69	65.00	79.95

Source: Cotton-World Statistics, Col. 32, Nos. 3 & 4 (Part II) Page 34.

Figure 2.5.2 COTTON GROWING AREAS OF SYRIA, 1976



and exports reached a peak in 1965 at 180,200 tons when world cotton markets were depressed (Table 2.5.3). From Table 2.5.1 it can be seen that production had not reached the former peak by the 1977/78 crop year, and exports were well below the 1965 level.

Syrian cotton is exported to about 30 countries, but not all of them every year. The main countries in recent years have been P. R. of China, U.S.S.R. and Czechoslovakia, Italy, F.R. of Germany, France and Switzerland (Table 2.5.1). Among world cotton producing countries, Syria ranked 13th in total production in 1977/78, 7th in export volume and 7th in yield per hectare. In 1976/77 it was 10th in production and 4th in exports. It has the potential of increasing output through increased plantings on irrigated land made available from irrigation and land reclamation projects now under way and through increases in yield. The average yield per dunum in 1978 was 230 kg. of seed cotton, whereas, in some places in Syria yields were 400 kg.

Mechanization of cotton harvesting and other improved production practices are viewed as necessary to hold down production costs so that Syria can hold its competitive advantage in cotton relative to other Syrian crops and relative to other countries. Evans estimated comparable costs of production of Syrian cotton and cotton produced in the western United States. Harvesting cost were about the same per kilogram of seed cotton produced (Table 2.5.4).

2.5.1 The Marketing System

Seed cotton is harvested by hand and delivered to the Cotton Marketing Organization in 150 kg. bags accompanied by a permit to move the cotton (issued by MAAR). It is sampled, graded and a check for the cotton is deposited to the growers account in the Agricultural Bank. A producer can appeal the grade given his cotton, but it rarely happens. If there is no change in the decision, the producer pays the regrading expense. Seed cotton is stored in bags in uniform lots on the ground and covered with canvas until ginning. It is stored an average of three months with practically no losses or deterioration.

The ginning season lasts six months if necessary to complete all the crop. Before CMO was established there were 62 gin plants, many of them small roller gins; now CMO has 20 gins that handle about the same volume. Currently 95 percent of output is from saw gins. Hand picking yields cleaner cotton and the method of storing and having a long ginning season holds ginning cost down. In 1978/79 gin costs were 0.14 L.S./kg. for seed cotton, in 1977/78 it was 0.12/kg. and L.S. 0.1075/kg. in 1976/77. Transportation to the gin and ginning costs totaled 4.3 and 5.4 U.S. cents per kg. in Syria and the U.S., respectively, Syria's cost was about 20 percent lower (Table 2.5.4).

Table 2.5.3 -SYRIA: SUPPLY AND DISTRIBUTION OF COTTON, 1950-77¹

Season beginning September 1	Production	Consumption	Export contracts	Ending free stocks ²	Production	Consumption	Export contracts	Ending free stocks ²
	----- 1,000 metric tons -----				----- 1,000 bales (480 lb net) -----			
1950	35.5	7.6	23.1	(3)	163	35	106	(3)
1951	48.0	8.5	35.9	(3)	220	39	165	(3)
1952	45.0	8.3	39.6	(3)	207	38	182	(3)
1953	47.2	8.1	39.8	(3)	217	37	183	(3)
1954	59.8	7.8	71.8	(3)	321	36	330	(3)
Average	49.1	8.1	42.0	(3)	226	37	193	(3)
1955	87.0	8.1	79.7	(3)	400	37	366	(3)
1956	92.8	9.6	81.4	1.4	426	44	373	6
1957	107.2	11.0	94.5	3.1	492	51	434	14
1958	96.5	13.9	84.9	.9	443	64	390	4
1959	97.1	12.4	84.9	.6	446	57	390	3
Average	96.1	10.0	85.1	1.4	441	51	391	5
1960	111.3	13.6	97.8	.5	511	62	449	23
1961	124.5	16.4	107.7	.9	572	75	495	4
1962	150.1	17.9	132.2	.9	689	82	607	4
1963	152.9	20.7	131.5	1.5	702	95	604	7
1964	175.6	20.8	154.5	1.8	807	96	710	8
Average	142.9	17.9	124.7	1.1	656	82	573	9
1965	180.2	21.2	160.1	.7	828	97	735	32
1966	141.5	20.7	121.5	-	650	95	558	-
1967	126.5	24.8	101.6	.1	581	113	467	(4)
1968	153.6	23.6	122.5	7.7	705	108	563	35
1969	149.4	23.8	133.2	.2	686	109	612	9
Average	150.2	22.8	127.8	1.7	690	104	587	15
1970	148.8	26.4	121.5	1.0	683	121	558	5
1971	157.4	34.6	121.8	2.0	730	159	559	9
1972	163.1	38.2	124.9	2.0	749	175	574	9
1973	155.5	32.6	123.4	1.5	714	150	567	7
1974	144.8	39.7	101.3	5.4	665	182	465	25
Average	153.9	34.3	118.6	2.4	708	157	545	11
1975	158.3	36.0	115.8	11.4	728	165	532	55
1976 ⁵	156.3	36.0	126.2	8.6	718	165	580	39
1977 ⁶	152.0	39.0	(3)	(3)	700	179	(3)	(3)

¹ From Syrian reports to the International Cotton Advisory Committee. Original data in metric tons. Elements may not balance because of rounding. ² Unsold stocks in hands of Cotton Marketing Organization. Actual stocks, which would include stocks at mills, in transit, etc., would be somewhat higher. ³ No data. ⁴ Less than 1. ⁵ Preliminary. ⁶ Forecast.

Table 2.5.4. -COMPARATIVE COST OF PRODUCING COTTON IN SYRIA¹
AND THE UNITED STATES, 1975/76-1976/77

Item	Syria		Western United States ²	
	1975/76	1976/77	1975/76	1976/77
Yield used ³	----- Kilograms per hectare -----			
For seed cotton	2,500	2,500	3,667	3,711
For cotton lint	950	950	1,139	1,197
On farm direct costs pre-harvesting	----- U.S. dollars per hectare -----			
Labor	169.86	176.92	80.41	75.81
Power and equipment	187.67	193.59	116.61	151.40
Seed	16.44	15.38	18.88	15.36
Fertilizer	102.19	95.64	131.23	64.17
Plant protection chemicals	8.22	38.46	136.99	127.01
Defoliants	—	—	30.77	—
Irrigation	41.10	115.38	⁴ 19.62	⁴ 37.08
Custom or contract work	—	—	34.04	53.76
Other	49.32	47.45	—	—
Subtotal	547.80	682.81	568.75	524.59
Harvesting				
Labor	82.19	128.21	26.79	25.28
Power and equipment	—	—	81.05	105.24
Custom or contract work	—	—	60.00	49.64
Other	5.48	10.26	—	—
Subtotal	87.67	138.47	167.84	180.16
Interest on operating capital	27.40	50.00	23.45	16.53
Off-farm direct costs				
Transportation to gin	34.25	32.05	25.11	26.39
Ginning (including bagging and ties)	68.50	76.92	165.73	176.63
Subtotal	102.75	108.97	190.84	203.02
Total direct costs	792.62	980.25	950.88	924.30
Overhead costs				
Management	—	—	90.51	125.30
General farm overhead	—	—	52.71	56.34
Subtotal	—	—	143.22	181.64
(Land cost (typical rental value)) ⁵	(184.93)	(198.72)	(153.20)	(172.97)
Total cost for seed cotton	792.62	980.25	1,094.10	1,105.94
Less value of cottonseed	127.40	119.23	209.64	220.36
Net cost for cotton lint	655.22	861.02	884.46	885.58
Net cost of lint per kilogram, not including land value ³ . . .	----- U.S. cents per kilogram -----			
	70.00	90.63	77.65	73.98
Including land value ³	96.84	111.55	89.51	88.43

¹ International Cotton Advisory Committee, Survey of Cost of Production of Raw Cotton, Document 10, 35th Plenary Meeting, 1976, and 36th Meeting, 1977. ² Arizona, California, and New Mexico. ³ See text. ⁴ Other irrigation costs including labor, power, and equipment are included in these categories. ⁵ Not included in total except as indicated.

All bales are high density to meet export requirements. After ginning, the cotton is again graded both by CMO and the Cotton Bureau. All exports require Cotton Bureau certification of quality before it can be shipped. In this manner quality is accurately identified and CMO cotton classers are regularly checked for accuracy.

Exports are sold through agents in Western countries on a one percent commission basis. Some is sold to Socialist countries on a barter basis. It is usually picked up at the Syrian port by the buyer's ships. Cotton exports are taxed at a rate of 12.5 percent and a land tax of 9 percent is levied on all sales. Oil mills and textile mills pay 9 percent on seed and lint, respectively. This partially explains the lower Syrian producer price compared to the Turkish and U.S. producer price.

Seed cotton is priced by the State and does not fluctuate to the same degree as international markets. The price schedule generally is announced in April before planting time and it remains the same for the year. Official prices from 1965 to 1979 are listed in Table 2.5.5 and the extensive schedule of premium and discount is in Appendix A. CMO delivers lint cotton to local textile mills at "cost" and uses the same pricing procedure for cotton seed delivered to vegetable oil mills. This means these transfer prices are not sensitive to world markets.

The Cotton Marketing Organization operates 20 gins that range in capacity from 15,000 tons of seed cotton to 70,000 tons. Average yield of seed cotton is 38 percent lint, 61 percent seed and 1 percent waste. The base quality for pricing is zero grade 1 3/32 inch. Plans are to switch over to the U.S. system of grading Syrian Cotton to facilitate the export trade.

CMO has the capacity to gin 450,000 tons of seed cotton per year. In 1978/79 it ginned 350,000. Some gins operate three shifts, while others operate two shifts if production in the area is low. The organization employs 700 people year round and 5,000 seasonal workers from October to April. Ginning must be completed by April 30 for purposes of insect control. More than 95 percent of the seed cotton is delivered to CMO before the end of December. Their policy is to not carry over inventory of cotton into the next crop year.

In 1978, 25 percent of seed cotton was delivered by cooperatives, 35 percent was delivered by private farmers marketing through cooperatives and 40 percent was delivered directly by private farmers.

CMO has an extensive and well organized system for receiving and handling seed cotton and classing seed cotton and lint cotton. Producers are paid in accordance with quality and delivery specifications. Transportation subsidies are paid in some cases and 2 piasters per kilogram were paid for cotton delivered by cooperatives or through cooperatives (Appendix A).

Table 2.5.5 Purchase Price of Seed Cotton by the Cotton Marketing Organization
for Basic Quality

Season	Syrian Piasters for Kilogramme
1965-1966	76
1966-1967	76
1967-1968	78
1968-1969	80
1969-1970	80
1970-1971	80
1971-1972	80 + 1 For Cooperatives
1972-1973	84 + 1 " "
1973-1974	90 + 1 " "
1974-1975	115 + 1 " "
1975-1976	135 + 1 " "
1976-1977	145 + 1 " "
1977-1978	170 + 1 " "
1978-1979	183 + 2 For Cooperatives and for any Cotton Marketed through Cooperatives

2.5.2 Prices and Margins

Annual prices show a long term upward trend at the producer and local mill level with no declines. Export prices and marketing margins are more variable. By converting producer price into lint cotton equivalent, marketing margins can be calculated. The margins (or price spreads) for sales to domestic mills varied between 4 and 9 percent of the f.o.b. CMO price except for 1974-75 when it was 22. For export sales to northern Europe the marketing margins varies from 24 to 70 percent of the delivered price (Table 2.5.6).

An attempt was made to account for the cost and profit components of price spreads. Apparently ginning cost is about the only cost involved in domestic mill sales over the producer price. But CMO apparently lost slightly on these sales for 1976/77 and 1977/78 (Table 2.5.7). Export sales and margins are more complex assuming sales to Northern Europe, marketing costs for 1976-77 included ginning at 28 piasters per kg., 31 P. land tax at 9%, 44 P. export tax at 12.5%, 27 P. ocean freight and sales commission at 1%. Freight to port was not readily available. These estimates indicated a large profit for the 1976-77 crop year and a loss for 1977-78 (Table 2.5.7).

Evans compares prices paid to farmers in the U.S. and Syria and shows Syrian farmers generally received lower prices than U.S. farmers for comparable quality (Table 2.5.9). This can be partially explained by a 9% land tax and a 12.5% export tax that is paid by the CMO on exports. It would appear that except for these taxes, marketing costs for Syrian exports are lower than those in the U.S. With the favorable price for Syrian cotton in world market an open market without the export tax and land tax would be expected to yield a higher Syrian farm price than the comparable U.S. farm price.

2.5.3 Textile Operations

Textile mills in Syria utilized 35,000 to 40,000 tons of lint cotton for spinning and weaving in recent years (Table 2.5.10) to produce both pure cotton and blend products. Highly finished textiles are imported. Plans are to double the use of cotton by domestic mills to 80,000 tons in 1981. It is planned that the level of lint cotton exports will remain about the same and the increased supply for the domestic mills will come from increased production from new areas in the Euphrates project and from increased yields on current cotton areas. If this expanded production of cotton and textiles can be achieved without sacrificing cotton exports it will certainly add substantially to the Net Domestic Product of Syria.

From the available data, most of the output of the cotton textile products is used domestically, but there are enough exports to maintain a small positive trade balance in cotton yarn and cotton piece

Table 2.5.6 - Prices and Marketing Margins for Syrian Cotton sold to domestic
Mills and Exported^{a/}

Crop Year	^{b/}	Local Mills	Northern Europe	^{c/}	Marketing Margin
	Producer Price			Domestic	Export
		<u>(Piasters per kilogram)</u>	<u>(Percent)</u>		
1971/72	172	188.00	306.35	9	44
1972/73	183	195.50	337.69	6	46
1973/74	198	205.50	683.67	4	70
1974/75	254	324.00	456.80	22	44
1975/76	302	324.00	517.90	9	42
1976/77	321	348.00	672.30	8	52
1977/78	383	408.00	505.66	6	24
1978/79		456.00			

^{a/} Calculated from basic data in Table 2.5.8

^{b/} Lint cotton equivalent. This is seed cotton minus cottonseed credit based on 61 percent seed and 38 percent lint per Kg. of seed cotton.

^{c/} Exchange rate of 3.90 L.S. per 1 U.S. dollar.

Table 2.5.7 - Estimated Cost^{a/} and Margins for Syrian Cotton Sold to Domestic Mills and Exported to Northern Europe in Lint Equivalent

Item	1976/77	1977/78
	(Piasters/Kilogram of Lint)	
Farm Price of lint ^{b/}	321	383
Ginning cost	+ 28	+ 32
Lint cost f.o.b.	349	415
Local mill price	(348)	(408)
Net margin to CMO	(- 1)	(- 7)
Land tax 9% ^{b/}	31	37
Export tax 12.5% F.O.B.	44	51
Ocean freight (at 1975 rate)	27	27
Sales commission (1%)	7	5
Price, N. Europe (C.I.F.)	672	506
Cost del. N. Europe	458	535
Profit or loss	+214	- 29

^{a/} This is an estimate based on certain logical assumptions. It is^{not} claimed that these were CMO results.

^{b/} Farm price in lint cotton equivalent. This is seed cotton minus cottonseed credit based on 61 percent cotton seed and 38 percent lint per kg. of seed cotton.

^{c/} Paid by CMO only on exported lint cotton.

Source: Calculated from Table 2.5.8

Table 2.5.8 Prices for Syrian Lint Cotton and Cottonseed at Different Levels
in the Marketing Channel

Crop Year	Seed Cotton ^{a/} basic quality	Cottonseed ^{b/}	Lint Cotton ^{c/} 0 grade, 1 1/16"	Syrian Cotton ^{d/} CIF North Europe SM 1 1/16"
		(Piasters per Kilogram)		(US cents/pound)
1971/72	80	24	188.00	38.81
1972/73	84	24	195.50	42.78
1973/74	90	24	205.50	86.61
1974/75	115	30	324.00	57.87
1975/76	135	32.25	324.00	65.61
1976/77	145	37.75	348.00	85.17
1977/78	170	40	408.00	64.06
1978/79	183		456.00	

a/ Purchase price of seedcotton delivered to gins by Cotton Marketing Organization for basic quality. Does not include one piaster /kg. paid to cooperatives prior to 1978/79 and two piasters/kg. paid in 1978/79.

b/ Price of cotton seed delivered to Syrian oil mills for the calendar year beginning 1972.

c/ Price of lint cotton delivered to local textile mills.

d/ Average Liverpool Price Index for Syrian Cotton CIF North Europe SM 1 1/16", U.S. cent per pound.

Source: Personal correspondence dated March 19, 1979, from Rateb Jaber, Director General, Cotton Marketing Organization.

Table 2.5.9 -COMPARATIVE PRICE AND MARKETING MARGINS FOR SYRIAN AND U.S. COTTON, 1970-76

(In U.S. cents per kilogram)

Prices	Year beginning August 1						
	1970	1971	1972	1973	1974	1975	1976
Average prices in Northern Europe ¹							
U.S. SM 1-1/16"	70	83	96	173	125	157	182
Syria, SM 1-1/16"	69	86	95	191	128	144	188
Prices paid to farmers							
United States ²	50	62	60	98	94	113	143
Syria ³	54	54	56	62	83	96	96
Spread between farmer and North European prices							
U.S. cotton	20	21	36	85	31	44	39
Syrian cotton	15	32	29	129	45	48	92

¹Liverpool Outlook. Average of weekly quotations. ²Weighted by sales. Average for all qualities, but SLM 1-1/16. ³Base price of seed cotton in Syria divided by ginning outturn. It is assumed that cost of ginning was approximately offset by value of cotton seed.

Source: Evans, Robert B, "Cotton in Syria", FAS, USDA, FAS-M-280, April, 1978.

goods (Table 2.5.11). However, considering all textile trade there was a trade deficit in cotton equivalent of 3800 tons at least as late as 1975 (Table 2.5.11). In terms of the broad policy decisions, the plan to double use of lint cotton by 1981 appears to be sound. This project did not attempt to assess the operation of the textile industry, but expansion and net export of cotton textile products is a rather obvious development goal that should contribute to the economic development of Syria.

2.5.4 Assessment and Recommendation

The CMO appears to be a very efficient and well managed marketing organization. Ginning costs are relatively low, producers are paid according to grades and a uniform, clean, high quality product is delivered to world markets where it receives a favorable price.

The extensive grading procedure and the large number of small lots require much clerical work for record keeping. This could be handled more efficiently with a small computer. Accounting and management information could be greatly improved, purchase of a computer should be high priority.

Some Syrian cotton producers need to prepare to mechanically harvest cotton because labor shortages exist at harvest time. Efficient use of labor suggest that where terrain permits, mechanical harvesting is more efficient. This will require considerable organization and coordination with CMO. Land must be leveled in many cases so that harvesting machines can be used. It would appear advisable to begin mechanization of harvest in the new irrigation projects and where gins are already equipped to handle machine harvested cotton at Aleppo, Hama and Hasakah.

Performance of CMO appears to be excellent in terms of efficiency. In terms of equity criteria, an export tax is levied on cotton, the result is that producers receive lower prices than those in some other exporting countries, whereas, most competing crops grown in the same farms are subsidized (for example wheat and sugar beets). In short, the state takes off much of the extra economic rent associated with the competitive advantage of Syrian cotton by paying a lower than world market price. Maximum efficiency in resource use, efficiency in assembly and improved equity would likely be achieved by moving cotton and competing crop prices closer to international levels.

Market development of Syria's cotton exports appears to be a model that could be used for other Syrian exports. The product is of good quality, has reliable and uniform specifications and CMO has good relations with foreign buyers. In other words, it is a desirable product and its supply and terms of sale are dependable and predictable.

The policy of expansion of textile capacity to utilize 80,000 tons of cotton lint by 1981 is ambitious, but in the right direction to faster development.

Table 2.5.10. Syrian Textile Statistics, 1969-76

Item	1969	1970	1971	1972	1973	1974	1975	1976
(1000 tons)								
<u>Cotton yarn</u>								
Production	19.7	19.6	22.3	27.5	27.7	29.8	30.6	32.3
Imports	1.8	1.3	2.3	1.5	.8	.7	-	-
Exports	.7	.9	1.9	3.0	4.8	1.5	3.5	2.2
Balance	20.8	20.0	23.2	26.0	23.7	29.0	27.1	-
<u>Cotton Piece Goods</u>								
Production	12.7	12.1	15.0	13.8	13.5	13.9	14.1	-
Imports	.4	.2	.3	.9	.3	.5	0	-
Exports	1.6	1.8	2.4	3.2	2.7	1.9	1.4	1.2
Balance	11.5	10.5	12.9	11.5	11.1	12.3	12.7	-

Source: Cotton-World Statistics, Vol. 32, Nos. 3 & 4 (Part I) Quart. Bul. of
Int. Cotton, Adv. Comm. P. 118.

Table 2.5.11. -SYRIA: MILL CONSUMPTION OF TEXTILE FIBERS AND TEXTILE TRADE BALANCE
1960, 1965, 1967, 1970-76
(In 1,000 metric tons)

Item	1960	1965	1967	1970	1971	1972	1973	1974	1975	1976
Mill consumption										
Cotton ¹	12.8	20.9	22.1	24.7	29.1	35.8	36.3	35.0	38.6	37.7
Wool ² . . . . .	.4	1.5	2.7	3.6	3.3	2.3	1.8	2.6	-	-
Rayon ²	11.4	7.2	5.2	6.2	5.2	8.1	9.5	5.3	-	-
Synthetics ²	-	1.3	1.4	4.8	2.6	4.4	7.8	9.5	-	-
Total	24.6	30.9	31.4	39.3	40.2	50.6	55.4	52.4	-	-
Textile trade balance (raw fiber equivalent)										
Cotton ²	-1.3	0.3	+1.4	-1.2	-0.2	-2.3	-5.6	-0.5	³ -3.8	-
Wool ²	+3.2	+1.6	+1.3	+1.4	+1.2	+1.7	+1.0	-1.4	-	-
Rayon ²	-2.3	-1.4	-1.6	-1.1	-1.6	-1.6	-1.6	-5	-	-
Synthetics	-	+8	+1	+4	+8	+1.9	+6	+1.5	-	-
Total	-4	+7	+1.2	-5	+2	-3	-5.6	+1.3	-	-

¹ FAS. ² FAO, Per Caput Fibre Consumption, 1974 and earlier compilations. ³ Preliminary.

Table 2.5.12. -PER CAPITA CONSUMPTION OF TEXTILE FIBERS IN SYRIA, WITH COMPARATIVE DATA FOR NEAR EAST, WESTERN EUROPE AND WORLD, 1960-65, 1970-75¹

Area and calendar year	Cotton	Wool	Manmade			All fibers	Popula- tion	Per capita NDP ¹
			Cellulosic	Synthetic	Total			
	<i>Kg</i>	<i>Kg</i>	<i>Kg</i>	<i>Kg</i>	<i>Kg</i>	<i>Kg</i>	<i>Millions</i>	<i>Syrian pounds</i>
Syria								
1960	2.5	0.6	1.6	0	1.6	4.7	4.53	624
1965	3.7	.6	1.1	.4	1.5	5.8	5.32	801
1970	3.9	.8	.8	.9	1.7	6.4	6.25	859
1971	4.6	.7	.6	.5	1.1	6.4	6.45	916
1972	5.1	.6	1.0	.9	1.9	7.6	6.67	979
1973	4.3	.4	1.2	1.2	2.4	7.1	6.89	960
1974	4.9	.6	.7	1.5	2.2	7.1	7.10	1,111
1974 (Prelim.)	5.3	.4	1.0	1.6	2.6	8.3	7.35	1,351
Near East, developing ²								
1965	2.7	.5	.8	.1	.9	4.2	146.79	-
1974	3.4	.4	.7	.9	1.6	5.4	189.62	-
Western Europe								
1965	4.8	1.6	2.6	1.7	4.3	11.1	342.47	-
1974	4.9	1.2	2.4	5.5	7.9	14.0	363.13	-
World								
1965	3.2	.5	1.0	.6	1.6	5.5	3,362.00	-
1974	3.3	.4	.9	2.0	2.9	6.6	3,891.00	-

¹ Net domestic product at constant 1963 prices.
Iraq, Lebanon, Saudi Arabia, Syria, and Turkey.

² Including Egypt, Libya, Sudan, Afghanistan, Jordan, Cyprus, Iran,

Compiled from "Per Caput Fibre Consumption", 1973-74, FAO, 1 July 1976, and earlier volumes in same series. NDP data from Statistical Abstract of Syria, 1976.

Purchase Prices of Seed Cotton, All Specifications Included:
Season 1978-1979.

I. Specifications of standard cotton:

Degree: Zero - 1/4 to Zero

Length of fiber: - 1, 3/32

Net of ginning: - 38-39%

Rate of moisture: - 7-8%

Discount: 2% of Gross
Weight

Packing: in technical
sacks that have been filled
for the first or second
time.

II. List of purchase prices of seed cotton, covering its different degrees and lengths of fiber (list is given at bottom of page).

III. Observations

- a. Increase and reduction in the purchase prices are to be based on the rate of net ginning as indicated in this table:

Rate of Net Ginning	Price in Syrian Piasters
Above 42	+ 3,50
41.51 - 42.00	+ 3,00
41.01 - 42.50	+ 2,50
40.51 - 41.00	+ 2,00
40.01 - 40.50	+ 1,50
39.51 - 40.00	+ 1,00
39.01 - 39.50	+ 0 50
33.00 - 39,00	Standard
37,51 - 37,99	- 0.50
37,01 - 37,50	- 1,00
36,51 - 37,00	- 1,50
36,01 - 36,50	- 2,00
35,51 - 36,00	- 2,50
35,01 - 35,50	- 3,00
36,51 - 35,00	- 3,50
36,01 - 36,50	- 4,00
33,51 - 36,00	- 4,50
33,01 - 33,50	- 5,00
32,01 - 33,00	- 6,00
31,01 - 32,00	- 7,00
30,01 - 31,00	- 8,00
Less than 30	- 9,00

- b. To be subtracted from the cotton weight is the equivalent to the increase in the rate of moisture above 8%.
- c. To be added are 0.50 s.p. (piasters) per kgm. of the seed cotton of which the moisture rate is under 7%.
- d. To be subtracted is one syrian pound for each sack that does not have the technical specifications determined by the decree of the Ministry of Agriculture and Agrarian Reform.
- e. Five Syrian pounds are to be paid for each ton of gross weight if the sack weight rises above 160 kgms. in behalf of the porters in the gin mill.
- f. 120 s.p. are to be added to all the sacks of the Degree Zero.
- g. 25 Syrian pounds are to be added for each ton of seed cotton that is produced by Mohafazat Al-Hasakey and is sent to the gin mills in Aleppo.

25 syrian pounds are to be added for each ton of seed cotton produced by Mohafazat Deir Ezzoir and sent to the gin mills in Aleppo.

15 syrian pounds are to be added for each ton of seed cotton produced by Mohafazat Al-Rakka and Eia Al-Arab and sent to the gin mills in Aleppo

List of purchase prices of seed cotton:

Standard Price 183 syrian piaster per kgm. delivered to the gin mills in: Aleppo-Idleb-Hama-Homs-Damascus-Deir Essior-Al Hasaka:

Source: Cotton Marketing Organization, Aleppo, Syria.

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CHAPTER III

LIVESTOCK MARKETING

By

Gregory M. Sullivan and Donald E. Farris

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PREFACE

Several individuals gave valuable assistance to facilitate collecting necessary information. Dr. Munzer Zukari, veterinarian in charge of the Damascus slaughter plant, was helpful in collecting information on slaughter facilities in Damascus, Hama and Aleppo. He also arranged for visits to several government facilities in these regions.

Mr. Ali Youssif and Mr. Fakari in the General Consumption Institute authorized the survey of butcher shops in Damascus providing assistance in conducting the survey. Mr. Fares Khoury (MAAR) reviewed the manuscript.

1. OVERVIEW OF THE MARKETING SYSTEM FOR LIVESTOCK-MEAT, POULTRY, EGGS AND DAIRY PRODUCTS

This assessment examines the available information that indicates the level of performance of the marketing system related to meat, poultry and dairy products. Specifically, it examines practices, producers, policies, productivity, costs, prices, profits and overall efficiency achieved by the marketing system in using resources to satisfy consumer demand. Evaluation and recommendations are based on the judgement of the authors as to the degree of potential performance being achieved. Empirical evidence was obtained where possible.

Production and output in the livestock and meat subsector overall has increased little in the past decade and physical output per capita has declined. On the other hand output of poultry meat and eggs has increased sharply and was approaching self-sufficiency by the Spring of 1979. The increased demand for animal protein is being met mostly by the expanded poultry industry using mainly imported feeds. It is also being met by live sheep and carcass imports in an attempt to hold down the advance in lamb and mutton prices.

The value of animal production in constant 1963 Syrian pounds was one-third the value of agricultural production in 1969 and declined to one-fourth by 1976. Growth in the poultry meat and egg industries is one of the more successful aspects of agriculture in Syria. These two industries have been able to recently adopt the modern technology, management, processing and marketing systems that have led productivity and performance in most food industries in many countries since the 1950's.

Rapid advancement in livestock, meat and dairy products has not been as easy elsewhere and it appears to be even more difficult in the Middle East where arid land and tradition dominates many of the policies and practices. Development of all of these industries depends heavily on the development of the feed industry. The Syrian government and the private sector have recently expanded the feed industry to support expansion in livestock, poultry and dairy industries.

The striking point about the livestock-meat subsector in Syria is that demand has been growing rapidly while domestically produced supply has been relatively stagnant. This is generally true throughout the Middle East. Demand has been growing due to rapid growth in population and to rising income. Supply has failed to keep pace due to the arid climate and to failure to adopt modern production and marketing technology and modern management methods. Low productivity for labor and general inefficiency characterizes much of the entire subsector from production through processing and retailing. One can observe opportunities at every stage where improvement is possible and feasible from increased lamb crops to adoption of a standardized grading system and flexible pricing of meat at wholesale and retail.

Price control of meat and dairy products is being used to help hold down inflation, but it creates severe distortions and retards growth of the sub-sector. The public sector has an important responsibility and role in markets that are not commercialized to facilitate the movement of resources and firms; however, these are complex industries and poor management in the public sector can retard the performance of a marketing system by designing policies which seek to hinder the movement of resources and firms. If not prevented by restrictions, consumer demand will pull resources into the subsector to meet the growing demand.

1.1 Government Policies Affecting the Marketing System

There are examples of government policies designed to control either partial or whole segments of a commodity marketing system. A specific example is the policy by the Damascus Mohafaza that all sheep slaughtered and marketed in Damascus must be owned by the Meat Bureau. This policy has resulted in illegal trade of uninspected sheep being sold by the private sector to butchers, often above the government's control prices. The policy to monopolize the marketing system has caused inefficient utilization of available resources. The Damascus slaughter plant is underutilized with the government unable to purchase enough slaughter stock at prices which are within the government's retail price schedule.

Government decrees, which try to control even small portions of the marketing system, often cause distortions in the rest of the system. One example is the government's requirement that skins from all animals slaughtered in the Aleppo slaughter plant must be sold to the state-owned tanning factory. Government prices paid by the tannery are lower than prices in the private market. Producers are discouraged from using the plant and some slaughter at home instead. The slaughter plant is grossly under-utilized and operates at an economic loss.

Similar distortions in market exchanges can be documented in poultry, eggs and dairy products. In the marketing system where government has set market prices below the level at which products will be traded, resources will tend to go to the highest purchaser. In dairy marketing, dairy processing plants are unable to compete for fresh milk with the private sector which sells milk for prices higher than government retail prices. All three government dairy plants in Syria are using only a portion of their available capacity. Economic losses again accrue to society who must pay for these losses.

1.2 Legal and Economic Environment of the Marketing System

The means by which government regulates marketing activities influences how efficiently the marketing system will perform. Laws or the execution of laws which are inconsistent with economics will encourage individuals to violate these laws. Although technically there is no limit to the number of export licenses, the government issues only a few export licenses for sheep to a small group of private individuals. The majority of sheep fattening operators are restricted to sell only for domestic consumption

which encourages smuggling of sheep out of organized market channels. Large gains are restricted to a few fatteners who are able to organize the supplies, obtain export permits and deliver on the buyers terms.

Government, both a regulator as well as a participant in the production and marketing system, sends conflicting signals through the marketing system. Government, by regulating price at all levels, except at the farm level in some cases, causes products to be produced and marketed less efficiently. If wholesale and retail prices are kept artificially low, these prices become transmitted back to producers in the form of lower prices and fewer services.

When the public sector enters a segment of the marketing system, e.g. processing poultry, and constructs a facility which has a capacity larger than any plant in the private sector, there is no incentive on the part of private, low cost plants to make long term investment in their facilities. In some cases, the government facility is operated at less than full capacity realizing losses while the private sector is not encouraged to adopt technology which could lower their overall costs.

1.3 Operational and Pricing Efficiency of the Marketing System

Transportation and communication are important factors for the smooth flow, processing, and distribution of products. If products can not be handled and transported easily, costs to provide marketing services increase. The marketing of fresh milk is an example where marketing costs are high because products move in small volume. As total milk production increases over the next five to ten years, the present marketing system will have difficulty in handling this volume. An example of an efficient transportation system has been the movement of live sheep, either internally, or to external markets because it is allowed to respond to market signals.

Marketing products at the least cost, given the relative demands, is achieved only when resources, human and material, are allowed to be organized most efficiently. With no controls on prices at the farm level, sheep flow to highest priced markets most efficiently. In poultry and egg marketing the marketing margins from farm level to retail have been competitive and not exorbitant. Where freedom to enter a marketing system occurs, costs are kept relatively low.

In the poultry and egg subsector, prices for products fluctuate with supply and demand conditions prevailing in the market place. The number of producers, processors, middlemen, and retail outlets are sufficient to keep prices at each stage of the marketing system close to marketing costs. In March, 1979 market prices generally were below the official government prices for poultry, meat and eggs. It is relatively easy to enter the marketing system at either the wholesale or retail level. The operational and pricing efficiency for livestock products are dependent on government policies which determine how firms will operate in the marketing system.

1.4 Progressiveness of the Marketing System

Performance of a marketing system can be measured by how progressive firms are in marketing a product. Adoption of new technology is an indicator of profit incentives that encourage firms to invest in their operations to make them more efficient. Where government policies prevent these incentives from being expressed, government then often is inclined to begin to operate firms. The marketing system for livestock products in general is not that progressive. The margins of profit determined by government in some cases, like eggs, is low resulting in little incentive to provide additional services or packaging of the product. If a marketing system is progressive, this has long term effects in encouraging investment in production and delivering lower cost products to consumers.

1.5 Performance Levels and Government's Role in the Marketing System

Equity considerations are important in determining the level of performance of a commodity marketing system. In the export trade of live sheep, although entry is claimed to be free, a few individuals are allowed, through government regulation, to realize large net profits while the majority of the firms in the industry are refused (or are unable to gain) legal entry. Performance of sheep production and marketing could be improved if more individuals are allowed to share in the benefits from trade. Government's role as a supervisor of the marketing system could be to indicate the system is allowed as many as can profit to enter the business and that fraud does not give certain interests an advantage.

If firms are required to operate within guidelines which are determined to be equitable, middlemen have an important role to play in assembling products, processing, packaging and distribution of products. Profit levels can be reviewed by government to determine level of performance and the equity of this system. Losses in the dairy processing plant in Aleppo, the slaughter plant in Damascus, the wool scouring plant in Hama, and the poultry processing plant in Damascus are indications that the marketing system is not performing at an acceptable level. The justification that the public sector operates a plant to serve the needs of the consumer is partly an illusion when the consumer must ultimately pay for losses through government revenue.

The role of the public sector, as a participant in the marketing system, should be to aid or assure satisfactory delivery of products demanded by consumers. Government ownership may not be an effective way of achieving this; however, the public sector can be used as a means of protecting consumer interests and assuring competition in a narrow market. For example, in Damascus, the government controls the meat market. At the retail level, the state-owned Meat Bureau operates ten meat retail shops as well as supplying the 1,200 mutton butcher shops with carcasses daily. The performance of the government shops was found to be high, with reasonable profits, clean facilities, and good services to consumers. However, they were apparently subsidized to allow them to sell at the official prices. The private mutton

shops had a much lower level of performance with smaller profit returns and poorer services due to the fixed wholesale and retail prices. It was found that government regulations were keeping performance of the private retail trade low. When government is a competitor in the market, it should be required to cover costs, otherwise private investment will be discouraged.

Since there is only one modern slaughter plant in Damascus and in Aleppo it is reasonable that they be government operated, but ways need to be found to operate them as a service to all interests in a manner that will cover costs if possible. Free government inspection may be desirable to protect the public. Inflexible prices, charges and operations do not meet the needs of an industry that faces variable costs and supplies and varying prices for its main products and by-products.

Retail butcher shops in Damascus are small and have low volume. They were generally unable to cover costs at fixed wholesale and retail prices. To stay in business, some violated the controls. Some also handled carcasses from illegal slaughter to increase volume and make a small profit. An environment for private modern retail grocery stores that also sell meat, or at least stores with a full line of meat and poultry is needed.

2. ASSESSMENT AND RECOMMENDATION FOR LIVESTOCK AND MEAT MARKETING

2.1 Description of the industry

Livestock and their by-products have an important role in the agricultural sector. Livestock provides 27% of the value of agricultural production and 4% of national gross domestic products in 1977 (Central Bureau of Statistics, 1978). The total value of livestock products increased in every year except 1974 which declined because of lagged effects from the war in 1973. In 1977, value of livestock production reached S.L. 918 million. For the period of 1975-1977, the average value of livestock products was 57% of the total value of total animal products produced during the same period (table 2.1).

Livestock production has also been an important export item including re-exports of fattened sheep (table 2.2). In 1977, the value of livestock and meat exports was 33% of the total value of food and live animals exported. The value of imported livestock and meat constituted only 2% of the total value of food and live animals imported. The livestock by-products of hides, skins, and wool exported was S.L. 87 million in 1977 which exceeded the value of livestock and meat exported. Livestock present an important source of export earnings for economic development.

The livestock population for Syria during the period of 1971-1977 is presented in table 2.3. In 1977, there were approximately 7 million sheep which is the major source of animal protein for Syrians. Based on three year moving averages, the average annual growth rate for the period of 1971-1977 was 5.9%. Cattle and goat production are secondary enterprises with a smaller national herd size. Annual growth rates for cattle and goats were 4.5% and 8.2% respectively. Cattle are mainly kept for production of milk.

Table 2.1. Value of Livestock Production at Current Prices, 1971-1977

	Year						
	1977	1976	1975	1974	1973	1972	1971
	----- (Million S.P.) -----						
Value of Livestock Production							
Livestock	858.2	708.7	604.4	392.4	459.5	178.8	210.1
Wool	57.3	159.6	46.9	48.6	28.1	34.1	31.5
Animal Hair	3.1	2.5	7.7	9.8	4.3	4.5	4.4
Total	918.6	870.8	659.0	450.8	491.9	236.4	246.0
Value of Livestock Products as % of Total Animal Production ^a (%)	54	60	57	52	56	43	46
Value of Livestock Products as % of Total Agriculture Production (%)	15	16	15	12	22	9	12

a. Animal production includes milk, livestock, eggs, poultry and wool and hair products.

Table 2.2. Exports and Imports of Food and Live Animals in Syria, 1977.

Product	Exports		Imports	
	% of Total Food & Live Animals		% of Total Food & Live Animals	
	Value (1000 LS)	%	Value (1000 LS)	%
Live Animals	59,061	22	10,741	1
Meat and Meat Preparation	31,198	11	13,538	1
Total Food & Live Animals	273,281	100	1,124,339	100

Source: C.B.S., 1978.

Table 2.3. Livestock Population^a in Syria, 1971-1977

	Cattle	Sheep	Goats
	----- (000 head) -----		
1971	506	5,456	741
1972	488	5,166	697
1973	494	4,840	608
1974	524	5,295	684
1975	557	5,809	814
1976	574	6,490	956
1977	639	7,070	1,010
Average Annual Growth Rate ^b (%)	4.5	5.9	8.2

^aC.B.S., 1978^bBased on 3 year moving average

Distribution of small ruminants is variable based on the season of the year. Availability of forage is the major determining factor whether small ruminants will be grazing post-harvest stubble in the higher rainfall areas or in the steppe region. (Distribution and migration studies have been covered in detail by Boykin and Khoury). Cattle being primarily kept as a dairy herd are not moved to seasonal grazing areas. Cattle are distributed in the higher rainfall areas with over 250 mm. annual precipitation and along the Euphrates River.

Meat prices rose faster than most agricultural products in the last decade. Rising prices are attributed to the lack of growth in supply in the face of sharp growth in population and growing incomes. The increase in demand for animal protein is being met mostly by the expanded poultry production using mostly imported feed.

2.2 Assessment of the Marketing System for Livestock and Meat

Livestock marketing in Syria can be described as being competitive with the majority of control in the hands of the private sector. The Syrian government is trying to improve its position in the marketing system by using government organizations or cooperatives.

At each stage of the marketing system there are many buyers and sellers which leads to competitive pricing for available products. Some distortions in the flows of products through the traditional markets have occurred where the public sector has tried to enter and either become the sole purchaser or set ceiling prices for a commodity.

2.2.1 Transport and Network Flows of Products

Domestic Production of Livestock

(a) Transport network and rates

The majority of the population is concentrated in the western one-third of Syria (table 2.4). The road and railroad system is developed with all weather roads connecting the administrative capital of each mohafaza (figure 2.1). The major traffic flows are north to south linking the agricultural areas and Mediterranean port cities in the north with the capital of Damascus and other Middle Eastern countries.

Even though there is a rail line between the North and South of Syria, most of the livestock moved by trucks. Caravan trucks with double decks are numerous with regular traffic between Aleppo and Damascus. Availability of trucks does not seem a problem in transporting livestock. Transportation rates for shipping livestock are established by cooperatives made up of truck owners. Transportation rates between various locations in Syria are listed in table 2.5. The transportation rates apply to sheep which are the primary type of livestock transported.

Table 2.4. Domestic Livestock Production and Recorded Slaughter by Mohafazat, 1977

Mohafazat	Human		Cattle		Sheep		Goats	
	Population	Population Slaughter ^a	Population Slaughter ^a	Population Slaughter ^a	Population Slaughter ^a	Population Slaughter ^a	Population Slaughter ^a	Population Slaughter ^a
	(number)	-----('000 head)-----						
1. Damascus	1,457.9	113	5	363	463	204	0	
2. Aleppo	1,316.9	21	11	1,228	211	172	5	
3. Homs	546.1	95	22	1,086	126	50	17	
4. Hama	514.7	62	5	1,281	131	71	24	
5. Lattakia	389.6	63	4	26	69	25	3	
6. Deir-es-Zor	292.8	46	8	620	96	43	15	
7. Idleb	383.7	34	3	414	62	92	5	
8. Al-Hassakeh	468.5	43	5	898	49	90	8	
9. Al-Rakka	243.7	2	0	771	18	52	1	
10. Al-Sweida	139.7	18	2	135	4	88	0	
11. Dar'a	232.5	40	3	188	12	80	-	
12. Tartous	302.1	92	5	30	24	34	6	
13. Quneitra	16.5	10	-	30	-	9	-	
Total	6,304.7	639	73	7,070	1,275	1,010	84	

^a Estimate does not include uninspected slaughter which can be equivalent to inspected slaughter.

Figure 2.1. Transportation Networks in Syria

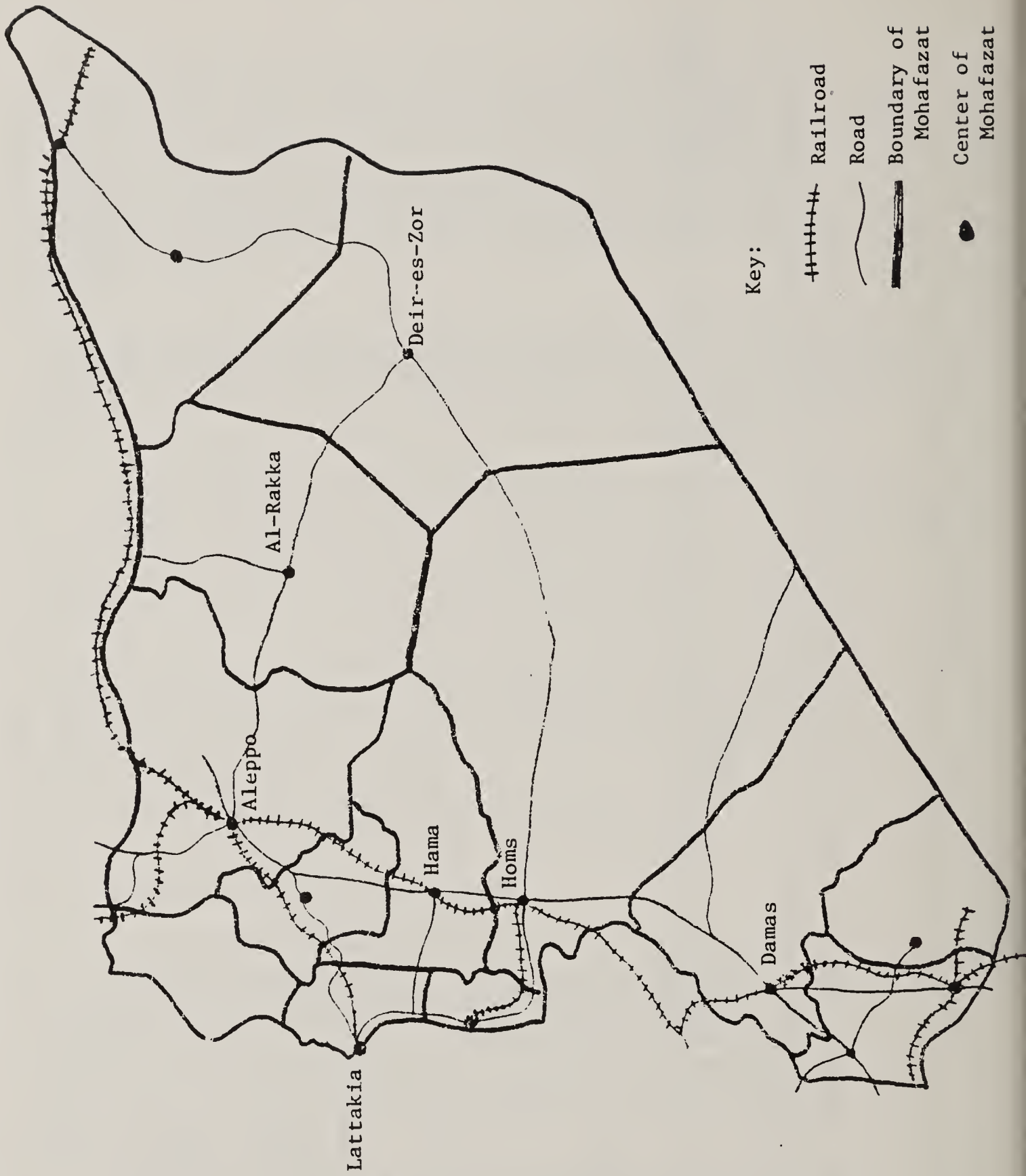


Table 2.5. Transportation Rates for Shipment of Sheep Between Interval Cities in Syria, 1979.

Location	km.	Transportation Charge/Truck
Aleppo to Damas	355	525
Aleppo to Latakia	186	
Aleppo to Hama	146	
Aleppo to Homs	196	
Hama to Homs	47	
Hama to Damas	209	450
Homs to Damas	162	
Al-Hassakeh to Dier-es-Zor	177	
Dier-es-Zor to Aleppo	317	
Dier-es-Zor to Homs	529	
Dier-es-Zor to Damas	691	

Source: Shippers of Sheep.

A double decker caravan truck is able to hold approximately 110-120 small sheep and 70-80 large size sheep. The transportation charge from Aleppo to Damascus was S.L. 525 per truck in March, 1979 plus S.L. 50 for the attendant who manages the sheep. From Hama to Damascus, transportation charges were reported at S.L. 450 per truck.

A specialized meat trade operates between Aleppo, Hama, and Homs in the livestock surplus region and Damascus, the nation's capital. Deboning of carcasses and shipment of red meat is carried on daily. There are approximately 10 butchers in Aleppo and 50 butchers in Hama involved in this trade. For example, a butcher in Hama delivers daily to Damascus 150 kg of lamb/mutton and pays S.L. .25 per kg for transport. The meat was transported in a private car or taxi which goes daily from Hama to Damascus. Another butcher in Aleppo was involved in a similar trade, except marketing boneless beef, approximately 150 kg per day and paid S.L. 0.30 per kg. for transportation.

b. Flows of Livestock Products

Based on production and slaughter estimates for each mohafazat in Syria found in table 2.4, the trade flows between surplus and deficit regions are illustrated in figure 2.2. The small circular arrows on the figure indicate that local production goes to satisfy local demand for livestock products. If recorded slaughter exceeds production in the mohafazat, then the region is meat deficient and requires supplies from other regions. Latakia and Damascus are the major meat deficit regions. Latakia received additional supplies either from Aleppo or from imports of either live or frozen sheep. Information in table 2.4 indicates that cattle and goats would not generally be transported to other mohafaza since each region's production appears to meet or exceed demand.

The major flows of sheep are to Aleppo, Hama, and Homs where there are large secondary markets. Sheep are purchased either for fattening or for slaughter. Slaughter stock will be either butchered for meat in these cities, sold to the government's Meat Organization for transportation to Damascus or sold for export to the Gulf States.

Imports of Livestock and Meat

(a) Transport Network and Rates

A major trade in the importation of live animals occurs between Syria and Turkey. Private traders purchase sheep in Turkey with peak trading period beginning in October-November and lasting until March. Sheep are purchased thin and sold for fattening. For Hamara sheep from Turkey, sheep fatteners paid \$1,900 per metric ton (m.t.) in March, 1979. Many of the imported animals from Turkey reportedly are trekked across the border illegally; however, some sheep are transported by truck or by train under license.

Another important entry of livestock is through the ports of Latakia and Tartous (figure 2.3). Imports have been either sheep to be fattened in Aleppo and Hama or frozen meat for the large urban areas. The major importer has been the state-owned Meat Bureau, a division of the General Consumption Institution (G.C.I.) in the Ministry of Supply. A contract in 1979 between G.C.I. and the government of Romania was for frozen mutton at U.S. \$1,650/m.t., - plus freight. For 1979, G.C.I. also signed a contract with Romania for 50,000

Figure 2.2. Internal Flows of Marketed Livestock in Syria

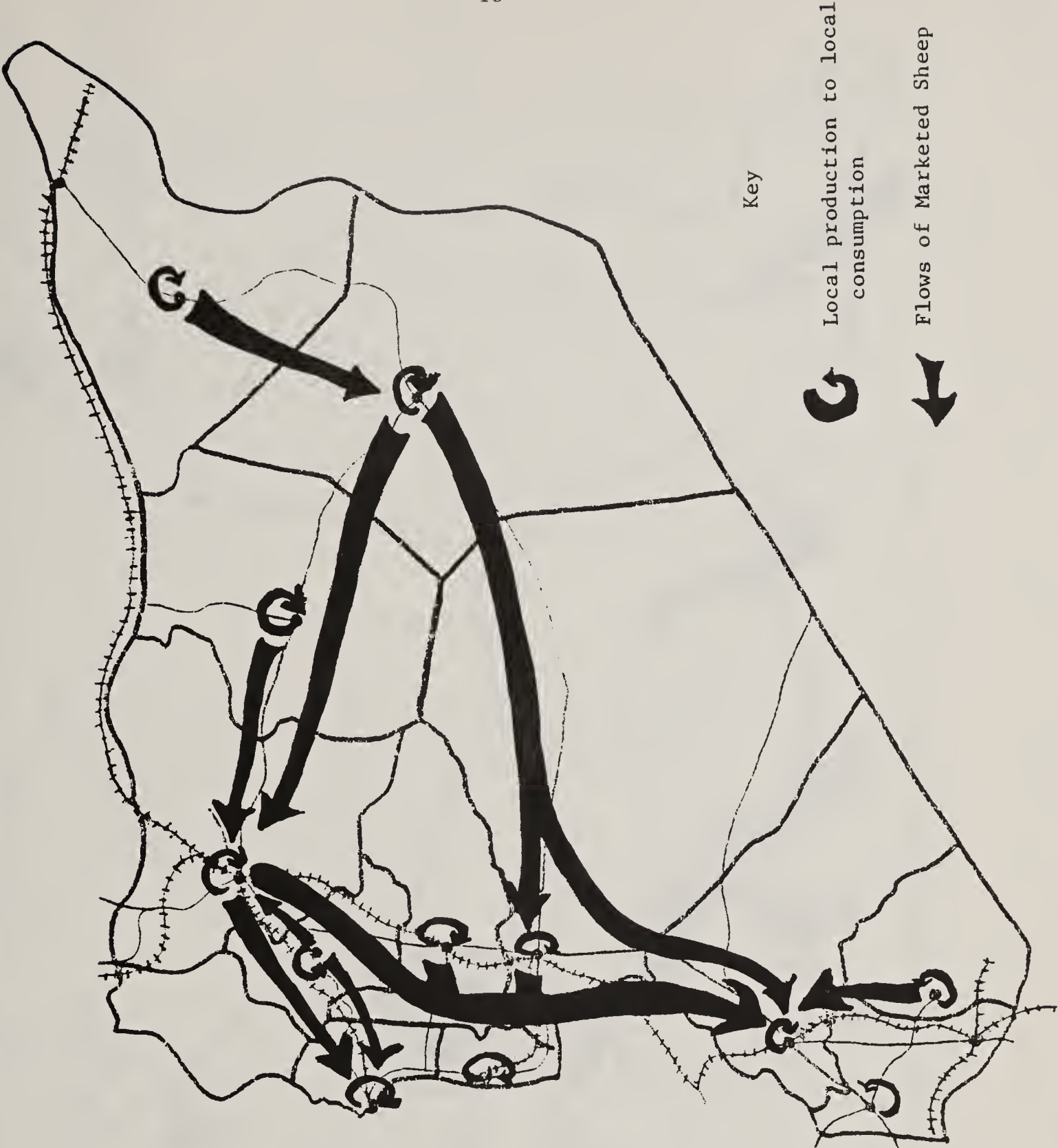
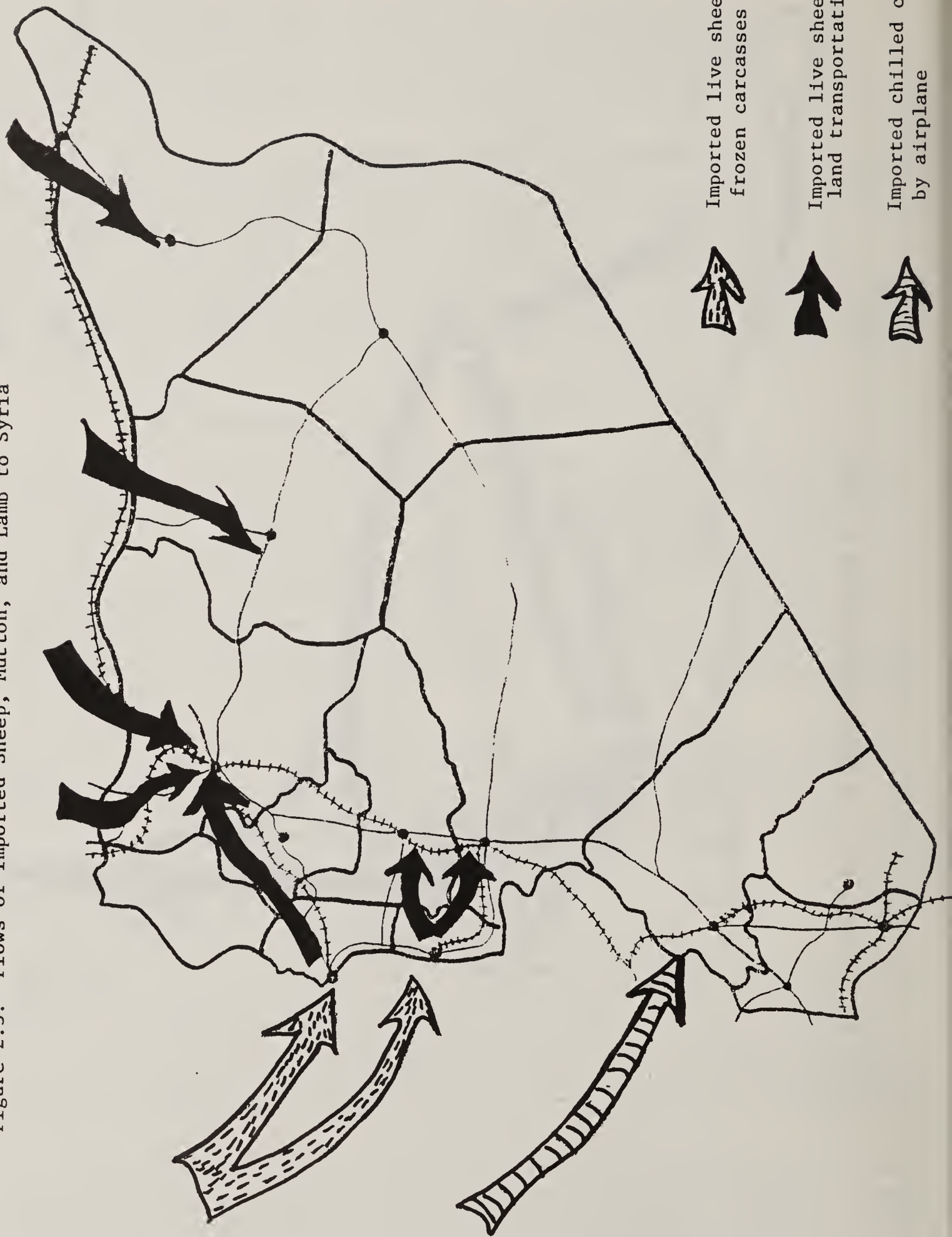


Figure 2.3. Flows of Imported Sheep, Mutton, and Lamb to Syria



sheep to be delivered to the government's fattening operations in Hama and Aleppo.

(b) Flow of Imported Livestock and Meat

G.C.I. also imports chilled lamb carcasses from Bulgaria and Romania by airplane. Air shipments of meat are only for Damascus with the purpose of holding down the retail prices for meat and providing sufficient supplies. In a recent contract with Bulgaria, G.C.I. paid U.S. \$2,750 per metric ton (m.t.) - cost plus freight (C&F). In addition to C&F value G.C.I. was required to pay a 15% customs duty and 2% for insurance. Because G.C.I. controls the Damascus market for purchase and distribution of meat, the government arranged for the delivery of 2,000 tons of fresh meat in 1979 for Damascus. In the first and second quarters of 1979, G.C.I. has been taking delivery of between 13-16 tons by plane every other day. Quantities imported by the Meat Organization and their costs are listed in table 2.6.

Exports of Livestock and Meat

Livestock are exported mainly to the Gulf States. Before the Civil War in Lebanon, this country was an important importer of Syrian livestock. Livestock for export are mostly trucked; however, the illegal export of sheep reportedly is carried on by trekking sheep across the border into Jordan and then they are transported by truck. Sheep fattened in Hama, Homs or Aleppo are shipped directly by private trucks to Kuwait, Saudi Arabia, or Qatar. A truck hauling sheep from Aleppo to the Gulf States takes 5 days for a round trip. Transportation charges in March, 1979 were S.L. 2,500 for the rental of a truck which is approximately S.L. 22 per animal.

(b) Flows of Exported Livestock and Meat

Exports of livestock from Syria from 1965 to 1976 are listed in table 2.7. Sheep and goats are the major export items. In 1977, the value of exported sheep and goats was S.L. 3.5 million (Central Bureau of Statistics, 1978). Only a very negligible number of cattle, buffalo or camels are exported. Syria is a net importer of meat and meat preparations, exporting S.P. 1.3 million while importing S.P. 13.5 million in 1977 (CBS, 1978). Because Syria exports live animals rather than meat, the value added by slaughter is lost, but the premium for live exports is probably more than enough to offset this loss.

Exports of Hides, Skins, Wool and Hair Products

(a) Transport Network and Rates

Hides, skins and wool products are an important by-product because of their foreign exchange value. Public and private owned tanners are located in Damascus, Homs, Hama, and Aleppo. The government-operated tanneries are in Damascus and Aleppo. Leather products for export are shipped by truck from

Table 2.6. Quantity and Costs of Import of Meat by the Meat Organization, 1976-1978.

Year	Qtr.	Product	Quantity	Delivered Costs	Duty ^a
			M.T.	\$/M.T.	\$/M.T.
1976	2nd	frozen mutton	950	1,325	53
		chilled mutton	500	2,235	373
	3rd	frozen beef	500	1,258	50
		frozen mutton	1,000	1,270	51
1978	2nd	fresh mutton	950	2,700	451
		fresh veal	500	2,250	376
	4th	frozen mutton	1,000	1,645	66
1979		fresh mutton	2,500	2,750	459
		frozen mutton	-	1,650	66

^aThe import duty is 16.70% of the value of fresh meat and 4% of the value of frozen meat. Insurance is 2% of the value.

Table 2.7 Exports of Livestock from Syria by Years

Year	Sheep	Goats	Cattle and Buffalo	Camels
1965	510,392	27,691	39,882	188
1970	332,284	108,811	64,082	-
1971	91,546	39,006	20,794	22
1972	170,133	9,336	54,158	150
1973	178,463	19,982	29,141	50
1974	437	121,336	21	-
1975	963,649	339,481	52	
1976	283	21,256	2	-
1977				

Source: Statistical Abstract - 1976, Ministry of Supply and Home Trade.

Tartous or Latakia and then by ship to either Italy or France.

Estimates of annual production of hair and wool are listed in table 2.8. Most of the wool exported from Syria is washed by hand and exported from either Tartous or Latakia by ship. There are 10 to 15 major private wool exporters in Syria located in Damascus, Homs, Hama, and Aleppo. The marketing system for exported wool appears to operate efficiently with peak season being from May until October.

(b) Flows of Animal Products

The value of the hides and skins exported in 1977 was S.L. 38 million with Italy and France as the major importing countries. In 1977, Syria imported S.L. 19.8 million in hides and skins for manufacturing into consumer products. One source of imports is from the Gulf States area. The value of wool exported in 1977 was estimated at S.L. 49.6 million. The transportation system seems adequate to ship larger quantities of wool by sea to major markets in Eastern or Western Europe.

2.2.2 Processing Facilities

Sheep Fattening (a) Structure of Industry

The sheep fattening operations in Syria rely on supplies from domestic production and imports. The fattening centers are located in the major secondary markets of Homs, Hama, and Aleppo. The fattening buildings are located near the market in each city for convenient access. Private individuals, the Meat Bureau of G.C.I. and feeding cooperatives are involved in fattening of sheep.

The G.C.I. has three fattening centers located in Homs, Hama and Aleppo. There are approximately 56 feeding cooperatives in Syria, and several hundred private individuals involved in fattening. G.C.I. and the cooperatives compete for input stock, while the larger private fattening operators send their own buyers to Turkey to purchase sheep. Some private fatteners operate as both importers and exporters.

The government has found it easier not to purchase directly from Turkey because of administrative and technical difficulties. Government buyers purchase fattening stock from the markets of Homs, Hama, and Aleppo. G.C.I. has difficulty in being able to purchase available livestock and sometimes has to pay a higher price.

(b) Production Costs

Many different breeds of sheep are used in fattening. The preferred domestic breed is Awassi because of its lower ratio of fat to carcass weight. Consumers also have a preference for the meat from this animal. Imported sheep from Turkey which are also preferred for fattening are the Garha, Hinnik

Table 2.8. Production of Washed Wool and Goat Hair in Syria, 1971-1977

Year	Goat Hair	Washed Wool ^a
	-----tons-----	
1971	533	6,443
1972	438	6,071
1973	355	5,497
1974	353	7,114
1975	481	6,170
1976	459	6,560
1977	467	6,834
Annual Ave. 1975-1977	469	6,521

Source: Central Bureau of Statistics, 1978.

^aRecorded amount through official marketing channels.

and Hamara breeds. Garha have the highest daily rate of gain compared to the other breeds of imported sheep. An average daily gain of 250 grams for Turkish sheep was reported by private operators in Hama and Aleppo. The domestic breeds have a lower rate of daily gain of 150 grams.

In table 2.9, production costs are estimated for fattening Turkish sheep. The analysis indicated that the fattener received a net profit of approximately S.L. 51.33 per head for sheep fattened for a period of 90 days. The margin of profit fluctuates based on season of the year. Availability of feed, feed price, supply of feeder sheep, and price of fattened sheep in the market can all influence the net return to the producer.

(c) Profit Margins for Exported Sheep and Performance of Fattening Operations

Government regulation requires that 20% of all imported sheep in Syria. Because of the demand for mutton in the Gulf States, these importing countries influence the live price for sheep in Syria. The price per kilogram liveweight in Kuwait and Saudi Arabia is between S.L. 3.00 - 4.20/kg. higher than prices in Aleppo. The margin of profit to exporters of sheep is estimated in table 2.10. On every animal exported, the exporter was estimated to receive S.L.97.00 per head.

The fattening cooperatives, which number 56, and the government fattening centers are not capable of realizing this return on their investment because they are restricted to the domestic market. The Meat Bureau is the largest purchaser of fattened sheep and is officially a monopsonist in purchasing sheep for the Damascus market. The price offered for fattened sheep by the Meat Bureau is below the export price because the government is trying to maintain low consumer prices in urban areas.

The fattening cooperatives, presently do not have bargaining power to negotiate a higher price with the government since the major buyer is the government-controlled Meat Bureau. This system makes it difficult for the fattening cooperatives to compete with privately owned fattening operations who have import/export privileges to sell in the higher priced export market.

Slaughter Facilities

In the two largest urban areas of Damascus and Aleppo, slaughter capacity and facilities for livestock are adequate. The slaughter plants were designed identically and have been operating for four to five years. The slaughter facility in each city is owned and operated by the local municipality and a fee is charged to cover operating expenses and maintaining the plant. In the smaller cities and towns, the local municipalities own the facilities but do not provide butchers for slaughtering the livestock. The owner of the animals must provide his own butcher and pays only a fee for the use of the building and veterinary inspection.

Table 2.9. Cost of Fattening Imported Sheep from Turkey for Slaughter in Syria, March, 1979.*

<u>Cost</u>	<u>S.L./hd.</u>
Purchase price F.O.B. Turkish sheep weighing 40 kg. @ US\$1900/m.t. liveweight	296.00
Transport by Train from Turkey to Aleppo	5.00
Custom duty.	20.00
Operating and feeding expenses ^a for 90 days @ SP1.50/day	135.00
Total cost per head	<u>456.00</u>
<u>Revenue</u>	
Sale price of fattened sheep weighing 70 kg after 90 days @ S.L. 7.91/kg.	498.33
Wool from fattened sheep is 2 kg per head @ S.L.4.50/kg	<u>9.00</u>
Gross Revenue	507.33
Net Profit	51.33

^a Average daily rate of gain for Turkish sheep is approximately 250 grams.

Source: From personal interviews with government and private fattening operations in Hama and Aleppo.

*Yearling

Import at 40-45 kg
Sold at 70-80 kg.

Table 2.10. Net Revenue from Sheep Fattened in Aleppo and Sold in the Gulf States of Kuwait or Saudi Arabia, Spring, March, 1979.

<u>Costs:</u>	Value (S.L./hd)
F.O.B. Aleppo (63 kg./hd.)	551.21
5% mortality rate in transit from Aleppo to Gulf States	27.00
Custom Duty	20.00
Transport Charges	<u>22.73</u>
Total Costs	620.94
 <u>Revenue</u>	
Sale price of sheep in Kuwait of S.L. 12.00/kg assuming each sheep weighs 59.9 kg accounting for 5% shrinkage in transit	<u>718.00</u>
 Net Revenue per head	 <u><u>97.06</u></u>

(a) Operating Conditions for Slaughter facility in Damascus

Slaughter capacity for the slaughter plant in Damascus is approximately 2,400 per head per day. The plant maintains one operating line of butchers. The Damascus slaughter plant is required to supply the government's Meat Bureau. Supply of livestock to the plant has been at less than full capacity requirements. The government restricts supply because the cost of animals purchased at current market prices is higher than the wholesale prices charged to butchers. The Meat Bureau recorded a loss of S.L. 1 million in 1978 in supplying meat to Damascus.

The slaughter plant in Damascus charges S.L. 6.00 for lambs per head, S.L. 6.80 for slaughtering sheep and goats and S.L. 17.50 for slaughtering cattle and 19.50 for camels. The slaughter plant is staffed at near to full capacity, but by operating at less than full capacity, the Meat Bureau loses additional money. The slaughtering of beef is conducted by private butchers with a fee collected for use of the building.

The municipality of Damascus is responsible for the slaughtering of the animals. The operations of chilling the carcasses and distribution of meat to butchers is the responsibility of the Meat Bureau. Carcasses are chilled for twenty hours to form a protective layer over the carcasses reducing the growth of bacteria. Refrigeration space is more than adequate with half of the cooler space being utilized. Because of the line of authority in control of the plant's facilities, maintenance of the plant has been below standards. The killing floor receives the best attention, but cooler salons, loading docks, and transport vehicles are not maintained properly. Areas in the plant used for deboning of meat were crowded and unkept with pools of water and blood standing in the main corridors. The entry and preparation chamber for slaughtering live animals could be better designed to control the animals and reduce the risk of injury to employees.

(b). Operating conditions for slaughter facility in Aleppo.

The slaughter facility in Aleppo has a capacity of 2,400 head per day. Currently the plant slaughters between 700-800 head per day while maintaining a full-time staff of approximately 300 employees. The average wage to employees is approximately S.L. 500 to S.L. 600 per month. The facility lost approximately S.L. 300,000 in 1978.

Unlike in Damascus, all phases of the plant's operation are under one manager. The operation and cleanliness of the plant was found to be better than in the Damascus plant. Based on an assumed daily throughput of 1,500 head, the fee paid for slaughter by owners of sheep is S.L. 7.25/hd. Breakdown in costs are listed in table 2.11. The slaughter fee paid by each owner is S.L. 7.28, currently, even though the plant is slaughtering an average of 700 head per day. The plant loses S.L. 5,460 each day it

Table 2.11. Cost Breakdown for Slaughter of Sheep in Aleppo Slaughter Plant.

Charges	Value
	(S.L.)
Overnight in shelter . . . . .	.50
Slaughter and skinning	1.50
Refrigeration . . . . .	.33
Rental of salon space . . . . .	.45
Utilities	2.00
Stamping and certification	2.50
Total cost	7.28

Source: Personal interview with plant manager, Aleppo.

operates in 1979.

There are 30-40 private suppliers of live animals to the Aleppo slaughter house. Each owner has designated stalls outside the slaughter house in the covered holding pens. Slaughter of animals begins around 6 a.m. and is completed by 9 a.m. The order of slaughter is by random selection, and carcasses are stored in cold storage according to the order of slaughter. Each morning carcasses are moved from cold storage on rails down to the salon floor where sellers of carcasses negotiate with butchers on the price for the carcass. Prices for meat will vary from day to day depending on season of the year, time of the week, and whether it is early or late in the morning. Price per kilogram of carcass meat can vary by as much as S.L. 1.00 to S.L. 1.50 between the first carcass to enter the salon and the last carcass to leave the cooler. There are an estimated 1,500 butchers in Aleppo, and on the average 500 butchers come to the slaughter house every morning buying supplies for two to three days.

(c) Performance of Slaughter Facilities

Even though Aleppo and Damascus each have modern slaughter facilities, the performance of these facilities is well below standards. Each facility is grossly underutilized while at the same time large numbers of carcasses are being slaughtered outside the slaughter plant. The ratio of carcasses per day to the number of employees is low, anywhere from 2:1 to 7:1 in the Damascus plant while in Aleppo it is lower, approximately 2:1 to 3:1 carcasses per worker based on slaughter data in tables 2.12 - 2.13. Because supplies of animals to the plant have decreased in Aleppo, the government has not scaled down their number of employees resulting in greater loss and lower efficiency in comparison to the Damascus plant.

Several reasons can be identified as to why the performance of the facilities is low. In Damascus approximately 59% of all slaughtered sheep carcasses are from uninspected slaughter. With over 1,200 butchers in Damascus, the supply of animals by the Meat Bureau has not been adequate. The reason has been that if the Meat Bureau were to purchase the necessary number of sheep to meet daily demand their losses would be extremely high. The Meat Bureau minimizes its losses by slaughtering fewer animals. Because the government controls the meat supply and sets retail prices, low performance is directly related to the government's policies. The trade in uninspected slaughter is important to supply needs of consumers which government is not willing and/or capable of supplying even though their policy is to monopolize the market.

The poor performance of the slaughter plant in Aleppo is attributed to different factors. The government maintains the slaughter facility and transportation of carcass meat from plant to butcher shops, yet the majority of slaughter is uninspected. The central market for livestock is far from the slaughter house so some butchers find it more convenient to slaughter sheep at home and also avoid the slaughter fee of S.K. 7.25 per head. Because of the ban on slaughter of females at the slaughter house, merchants

Table 2.12. Record of Slaughter of Livestock in Damascus Slaughter Plant, 1978.

Month	Type				Daily Slaughter of Sheep/Lamb ^a
	Sheep	Lamb	Camel	Cattle	
	- - - - - (head) - - - - -				
January	25,055	10,431	22	485	1,314
February	18,716	14,034	20	410	1,365
March	16,683	20,289	22	490	1,370
April	5,061	36,049	20	473	1,581
May	19	47,045	25	418	1,743
June	18,370	33,442	32	372	1,993
July	10,637	24,045	37	362	1,285
August	7,989	36,136	40	530	1,633
September	3,449	16,124	24	396	752
October	3,060	20,770	27	163	882
November	713	14,463	19	430	584
December	6,185	20,565	18	394	991
Total	115,936	293,402	306	4,923	
Ave. Daily Slaughter					1,291

^aBased on a six day work week.

Table 2.13. Record of Slaughter of Livestock in Aleppo Slaughter Plant, 1978

Month	Type					Daily Slaughter of Sheep/Lamb
	Sheep	Lambs	Goats	Camel	Cattle	
	----- (head) -----					
January	9,078	4,526	217	235	585	504
February	7,724	11,829	198	225	730	815
March	6,323	6,109	92	219	734	460
April	4,202	9,037	99	223	283	509
May	3,008	6,847	221	163	563	365
June	4,742	10,071	384	229	686	570
July	8,156	11,390	495	362	760	724
August	1,005	7,523	344	376	969	316
September	7,247	5,126	165	279	606	476
October	8,280	5,168	254	325	746	498
November	7,862	1,696	105	229	694	368
December	9,372	1,149	74	262	723	390
Total	76,992	80,471	2,648	3,127	8,079	
Ave. Daily Slaughter						500

^aBased on six day work week.

will slaughter these animals outside government's control. The government does impose a requirement that all skins from carcasses slaughtered at the plant be sold to the government's tanning plant. The price paid is S.L. 13.00 per hide which was 40% lower than the market price in the Spring of 1979. These factors contribute to the plant operating below capacity while twice the number of carcasses were being slaughtered privately.

Slaughter capacity is available at both plants with trained butchers and veterinarians to serve the industry. Government's involvement in the marketing system has not encouraged the private sector to utilize these facilities. Performance will continue to remain low as long as disincentives are placed on suppliers causing them to utilize illegal slaughter facilities.

In other municipalities like Homs and Hama, the government provides only veterinary certification and a small fee for use of the facility. The slaughter facilities are not as modern as those of Aleppo or Damascus, and in some cases sanitation conditions are below standards. The municipalities have not suffered any economic losses by maintaining buildings, but the community has received carcasses which have been slaughtered in conditions comparable to those for illegally slaughtered carcasses in Aleppo and Damascus.

Hide and Skin Tanneries

(a) Description of Tanneries

The government has three factories for the processing of hides and skins. Two of these factories are in Aleppo and the third is in Damascus. One plant in Aleppo and the plant in Damascus are relatively new; designed by a French firm and completed in 1974 but not opened until 1978. The plants were constructed with a capacity that could handle the skins from the government's slaughter plant. The tanneries are operated by the government's Arab Trading Company. The plants in Aleppo and Damascus have a capacity of handling 3,000 sheep skins per day and approximately 600 cow hides per day. Currently, the Damascus tannery receives 40% of its skins from domestic production and 60% from imports, primarily Middle East countries.

The plants produce unfinished leather, fancy leather, and lining leather. The factory in Damascus exports 70% of its leather to Italy and France. The tannery supplies 30% to local industries for manufacturing shoe wear. The tannery does dying of leather only on custom order, but most of their exports are as unfinished leather. Wool from the skins is sold to the private sector. The tannery in Damascus sells some of its wool to the military for manufacturing of clothing and blankets.

(b) Operational Losses of Tanneries

Operational cost estimates were only available for the Damascus tannery, but all information is applicable to the similar plants in Aleppo. The difficulty that the tannery faces is insufficient supplies of skins. The plant must import up to 60% of its skins. The Arabs Tanning Co. pays S.L. 16.00 per piece for a small sheep skin and S.L. 17.00 for a large piece.

In the private market, the price of a skin can go as high as S.L. 32.00 per piece during the winter. During the spring, prices for skins are at their lowest and have dropped to S.L. 14.00 - S.L. 16.00 per piece. The Arab Tanning Company imports skins from the Gulf States and paid S.L. 20.00 per piece in 1979. The tannery purchases cow hides from the private sector and pays a fixed price of S.L. 2.75/kg. greenweight. Manufactured hides are from the Palestinian areas of Damascus where there is a higher number of privately slaughtered cows.

Average processing costs for a sheep skin at the Damascus tannery were S.L. 12.00 per piece. Cost for tanning cowhide was S.L. 1.55/sq. ft. These costs are applicable when the plant is operating at full capacity which is currently not the case. At full capacity the plant requires 100 laborers and 30 administrators. A recent contract was signed for leather to be sold to Italy for U.S. \$7.00 per piece. At this price the plant is just breaking even on operating costs without considering the cost of their capital. A current list of sale prices for different products is found in table 2.14.

(c) Performance of Damascus Tannery

Given the current system of obtaining supplies of hides and skins, the tannery is unable to obtain sufficient supplies to operate at full capacity. Cost per unit of output is higher, reducing the margin of net profit to pay for the cost of capital. Because the slaughter plant was to be the tannery's major supplier, the tannery finds difficulty in paying the higher market price for hides and skins. Because of the higher prices for sheep in the Gulf States, large quantities of live animals are exported, and the tannery has been required to reimport the skins from sheep fattened in Syria.

Based on information in table 2.14, the tanning factory makes a profit on each local skin of S.L. 9.50 if exported and S.L. 6.00 if skin was imported. The margin of net profit is lower for fancy leather or a loss if lining leather is sold on the domestic market. The processing plant is unable to lower its production costs because of inadequate supplies of carcasses. The tanning plant must compete in the open market for skins which have domestic uses.

Wool Processing Facilities

(a) Description of Industry

Annual production of Syrian wool is estimated around 12,000 - 14,000 metric tons (m.t.). Between 6,000 - 8,000 m.t. of annual production reaches the official marketing channels (table 2.8). The remainder of wool is utilized within the family or local village or is smuggled into Turkey. Up until 1945, Syrian merchants were involved with exporting Syrian and Iraqi wool. Since that time Iraq has splintered off and developed its own export trade.

Syrian wool from Awassi is described as desert wool which does not require excessive scouring. The best results have been achieved with hand

Table 2.14. Costs and Prices for Products of Damascus Tannery, April 1979

Item	Local skin	Imported skin
	----- (S.L./price) -----	
<u>Cost:</u>		
Cost of untreated local sheep skin:	16.50	20.00
Production cost to treat skin	12.00	12.00
Total cost	28.50	32.00
<u>Sales:</u>		
<u>Export:</u>		
Export price	28.00	28.00
<u>Domestic Market:</u>		
Fancy Leather	23.63	23.63
Lining Leather	15.75	15.75
<u>Wool</u>	10.00	10.00
<u>Profit:</u>		
Export Market:	9.50	6.00
<u>Domestic Market:</u>		
Fancy Leather	5.13	1.63
Lining Leather	-(2.75)	-(6.25)

washing which gives a better quality fleece than Syrian wool which has been scoured. Wool is purchased by merchants located in the major towns in the sheep production areas. Many small private businesses are operating to wash wool. The purchase price for wool is S.L. 6.00 - S.L. 7.00/kg on the average for grade #1 wool. Wool merchants will either sell the wool for export using one of the few commission buyers or use it for stuffing mattresses. A commission buyer charges 1% of the value of product.

There are an estimated 10 to 20 major wool exporting businesses in Syria. These companies are located in Damascus, Homs, Hama, and Aleppo. These exporters clean, grade, and bale wool which is exported by either ship or by train. The recent F.O.B. price Latakia for Syrian wool was estimated at U.S. \$3.20 to U.S. \$3.30 (S.L. 12.80 - S.L. 13.20) per kg.

The government has entered the wool processing market with construction of a wool scouring plant in Hama with assistance from the United Nations. (Information about the plant was gathered from a personal source in Damascus and must be treated cautiously until a further in-depth study can be conducted.) The scouring plant, which was initially to be a pilot project, finally cost the Syrian government S.L. 70 million to construct. The plant has a capacity of 2,000 tons of greasy wool per year which produces 1,200 tons of scoured wool. The plant has only been able to purchase 15% of the marketable wool so the plant has been grossly underutilized. The goal of the project was to reduce the amount of wool that Syria exports by processing it for local industry. The Syrian wool was to be manufactured into yarn mainly for carpet production, but has been dumped on the local market being sold for mattress stuffing because of its poor spinning qualities.

(b) Operation Costs of Hama Wool Processing Plant

Not all the details were available to construct operations cost. From a personal source, the production costs of scoured wool were estimated at S.L. 16.00 per kg., which is much higher than what the private sector can wash Syrian wool for. Because Syrian wool is a desert wool, harsh scouring procedures lower the quality of the final product which has a market value of S.L. 12.00 and is being sold for mattress stuffing. The spinning of Syrian wool does not have a good top-to-yarn yield because of its unevenness. To spin 100% Syrian wool into yarn can result in a 20-30% wastage and is not economical.

In the private sector, merchants hand wash Syrian wool, and it sells for S.L. 15.00 - 17.00 per kg. The higher price is because hand washed wool allows longer length of wool that is good for mattresses. Merchants use approximately 22 kg for one mattress. A wool washer can wash about 250 kg per day and charges S.L. 30-40 per day. Two private merchants estimated it costs approximately S.L. 0.5 - 0.6/kg to wash, grade, and bale wool. The estimated costs of the Hama plant were S.L. 1.60-1.80/kg. for the same end product which had a lower market value.

(c) Performance of the Hama Wool Processing Facility

Performance of the scouring plant is low, from secondary evidence available. The scouring plant is larger than the viable market share. Using 100% Syrian wool results in a higher wastage factor because of its unevenness in length. Instead of the plant being a major supplier to local spinning mills, the spinners are importing tops and yarn in order to supply textile mills. The scouring plant is a high cost operation unable to be successful with its present operation. The plant produces a costly product which must be dumped on the local market and sold below the current market price as hand washed wool for mattress stuffing.

2.2.3 Market Facilities

Livestock Markets

Markets in Syria in general have not developed to insure efficient handling and selling of livestock. In the major livestock markets of Hama, Homs, and Aleppo, the markets are open areas with no sheds for protection. The sheep are herded into small flocks by each owner with buyers approaching the owner to negotiate a price. In all instances, a sale must be conducted with a "broker" who arranges for the negotiations and is a witness to the sale. The fee paid to the "broker" varies, but on the average is S.L. 3.00 per head (Figure 2.4b and 2.4c).

Animals may stand in the market for many hours waiting to be sold. During the hot summer months this causes shrink in the animals. Water and feed facilities are grossly lacking because buyers do not want animals full of water or feed during a sale. In each market, weigh scales were present but in poor condition. The weigh scale is owned and operated by a private individual who charges a fee to use the scale of approximately S.L. 1 per weighing. Most of the animals sold are purchased liveweight and then weighed to determine the total amount of money owed to the seller.

At the market, there are no loading and unloading facilities (Fig. 2.4a). Each of these major livestock markets are close to fattening operations. At the fattening building, loading and unloading ramps were present for driving the animals into the trucks. Sheep ready for sale are driven from the fattening center to the market each morning. Unfattened animals which are brought to the market are bought by fatteners for either stall feeding or returned to pasture depending on time of the year and condition of the animal (Figure 2.4d).

Distribution and Wholesaling Facilities

(a) The Private Sector

In the smaller urban centers, private merchants are responsible for distribution of meat from the slaughter plant to the butcher shops.

Figure 2.4 Sheep Marketing and Feeding Facilities in Aleppo, Syria



Figure 2.4a Aleppo Market has no loading facilities



Figure 2.4b Heifer delivered to market in small truck

Figure 2.4 (continued) Sheep Marketing and Feeding Facilities in Aleppo, Syria



Figure 2.4c Flocks awaiting buyers to come and negotiate



Figure 2.4d Sheep feedlot in Aleppo, Syria

Private merchants in the meat surplus areas of Syria - Homs, Hama, and Aleppo, wholesale and distribute carcasses or deboned meat for smaller butcher shops. The larger merchants in these cities have distribution systems which include Damascus. Because of the shortage of red meat in Damascus, butchers slaughter and debone carcasses, sending meat daily to Damascus. In Hama, there are merchants who fatten, slaughter, and distribute meat to Damascus daily. The transportation charge between Hama and Damascus is S.L. .25/kg. One merchant was supplying butchers in Damascus with 150 kg. and butchers in Homs with 70 kg. daily.

The distribution and wholesaling facilities for beef are controlled by private merchants. Even in the government controlled market of Damascus, private butchers are responsible for transporting carcasses from the slaughter plant to butcher shops. Because of the fewer number of head slaughtered, government does not enter into this distribution system.

Wholesale outlets for beef are more common than for mutton. A few merchants slaughter animals and distribute on a regular basis carcass meat to neighborhood butchers in the larger urban areas. Because there are many small butcher shops for beef, the marketing system benefits by having a few large dealers who wholesale the beef. A similar trade exists in the marketing of the offals of cows, sheep, and camels. A small number of agents specialize in wholesaling these specialty items. There is a primary need for these wholesalers since the government restricts retail outlets from selling different types of meat products reducing the volume of sales for any particular store.

(b) The Public Sector

The role of the public sector in the distribution and wholesaling of meat has been limited to Aleppo and Damascus. In Aleppo, government's involvement has been limited only to the distribution of meat from slaughter houses to the butchers. This is more a service than a means of control. Insulated trucks carry the sheep carcasses from the slaughter house to central points where butchers pick-up their carcasses. This service is paid for in the fees paid for use of the slaughter facilities.

In Damascus, the government's Meat Bureau of the General Consumption Institute in the Ministry of Supply controls the allocation and distribution of mutton. After slaughter and storage of carcasses for 20 hours, the Meat Bureau allocates carcasses on a random basis to the butchers who are members of the Butcher's Syndicate. A butcher receives his carcass without choice, the weight is recorded and then the carcass is loaded in an insulated truck for delivery to his pick-up point.

Because the Damascus plant is currently only supplying about 1,000-1,200 carcasses per day, the system is manageable. The distribution takes about 2 hours to complete beginning by 4 a.m. and finishing around 6 a.m. If the plant operated at full capacity and the Meat Bureau was the sole supplier

to Damascus, there would be difficulties in the delivery of meat especially during the summer months. The trucks used by the Meat Bureau are old and the insulation is beginning to wear. When carcasses are packed in the van, many are stacked on the floors and not hung properly, thus increasing the incidence of contamination and spoilage, especially during the summer. The rear doors are removed so carcasses are transported with some hanging from the back on hooks exposing them to environmental pollution. If the government wishes to improve the distribution system, it will require investments in modern transport vehicles to meet the requirements of the Damascus market.

In Damascus, the Meat Bureau has vertically integrated their operation to include supplying 20 retail meat shops and several supermarkets owned and operated by the government. To service these shops, the Meat Bureau has a center in the slaughter plant for the fabrication of meat. In the afternoon, butchers for the Meat Bureau debone carcasses. Meat is packaged as lean red meat or as mixed red meat with fat. The meat is then packaged, weighed, and vacuum sealed. Meat is delivered to the shops in the evening for sale the next morning. Butchers who deboned the carcasses at the slaughter plant are paid a commission based on the quantity of meat deboned. Frozen carcasses, which only the government meat shops sell, are distributed at the same time as the prepacked fresh meat. This system of prefabrication at a center location allows increased efficiency with daily delivery of between 1,100 to 1,400/kg of packaged meat.

Survey of Retail Meat Shops

To gain an understanding of retail outlets, a survey of butcher shops was conducted in Aleppo and Damascus. The design of the survey is explained in Appendix I. These two cities were chosen to examine the difference between the government's control of the meat wholesaling system in Damascus and the relatively open market operated by the private sector in Aleppo. In Damascus 18 mutton and 6 beef butchers were interviewed; and in Aleppo, 7 mutton and 4 beef butchers were interviewed. In each city poultry retailers were also interviewed which are examined in the chapter on poultry and egg marketing. Butcher shops were randomly selected from low, middle, and high income areas in each city. In addition to private shops, three government meat shops operated by the Meat Bureau were selected from the three income areas in Damascus.

(a) Mutton Retail Shops in Damascus and Aleppo

(i) Description of Shops

There are approximately 1,200 mutton retail shops in Damascus, while in Aleppo there are over 1,500 mutton retail shops. In table 2.15, survey results are presented on the characteristics of the butcher shops sampled. Butcher shops in general were small and crowded. The average store size was 154 sq. ft. All mutton butcher shops were reported closed on Fridays observing the Muslim religious custom. Mutton shops opened in

Table 2.15. Characteristics of Private Mutton Butcher Shops in Damascus and Aleppo, March, 1979.

Item	Unit	Damascus				Aleppo			
		Low Income	Middle Income	High Income	Total or average	Low Income	Middle Income	High Income	Total or average
Shops surveyed	no.	6	6	6	18	2	3	2	7
Size of shops	sq.ft.	90	180	192	154	273	264	680	385
Ave. time open	am	6:30	7:30	7:00	7:00	7:00	7:45	8:00	7:45
Ave. time closed	pm	4:30	4:30	4:00	4:15	4:30	4:00	4:00	4:15
Closed on Friday	%	100	100	100	100	100	100	100	100
Ave. Employees/ shop	no.	2	2.3	2.7	2.5	3.5	4.3	4	4.0
Fulltime Employee	%	100	100	66	89	100	66	100	86
Operated by Rela- tives	%	100	50	33	61	100	50	0	43
Owner in Syndi- cate	%	50	83	67	67	100	100	100	100
Refrigeration	%	100	100	100	100	100	100	100	100
Display case	%	0	0	50	17	100	0	100	71
Freezer	%	50	67	100	72	100	33	100	57
Operator/owner	%	100	100	100	100	100	100	100	100
Owner has other job	%	17	0	0	6	0	0	0	0
Operator owns other shops	%	0	0	0	0	0	0	0	0

Damascus on the average at 7 a.m. and closed at 4:15 p.m. Mutton shops open on the average later in Aleppo than in Damascus; at 7:45 a.m. but close at about the same time.

The number of employees working in the mutton shops in Damascus was 2.5 people; the number recorded for Aleppo was 4.0 employees per shop. For each respective income classification there were more employees per shop in Aleppo, probably reflecting the increased number of carcasses sold by each shop in Aleppo. On the average, similar numbers of shops had employees who worked full time. Fewer shops in Aleppo were completely staffed and operated by family members indicating possibly the more commercial nature of the shops in Aleppo because of the freer market with less government controls of supply. More owners interviewed in Aleppo reported being members of the Butcher's Syndicate than in Damascus.

All shops interviewed had refrigerators for storing meat which was not sold during the day. In the higher income areas in Damascus, 50% of the stores had display cases for their meat compared to none in the shops in low and middle income areas. A higher percentage of shops in Aleppo had display cases, 71%, indicating more consumer awareness on the part of butchers. In general more shops interviewed in Damascus had freezer facilities than in Aleppo. All shops were owned and operated by the same individual and his shop was his only business with no outside source of income.

The general impression is that shops are family owned and operated which serve as the only source of income for the butchers. In Aleppo, shops seem larger and employ more staff which could be correlated with the larger supplies of available meat. In Damascus, the Meat Bureau allocated a limited number of carcasses keeping store sales of inspected meat low.

(ii) Recorded Sales of Mutton Shops

Government regulation states that butcher shops are supposed to specialize in the sales of one product. There are separate shops for mutton, beef, poultry and offals. For the mutton shops interviewed in Damascus, some reported selling several types of meat products (Table 2.16). Owners of mutton retail shops in Aleppo did not report selling other products. Offals from sheep were the products that owners in five stores reported selling other than mutton. Most shops in the survey apparently were adhering to the government regulation.

Average monthly sales for the first and second quarters of the year are recorded in Table 2.17. Average monthly sales for mutton retail shops in Aleppo were higher than in Damascus by 15% in the first quarter (1,243 kg vs. 1,084) and by 54% in the second quarter (1,661 kg vs 1,078 kg.). For the first and second quarters, sales for shops for each income group in Aleppo exceeded sales in Damascus. High sales are attributed to Aleppo being in a meat surplus area and where the marketing system is less controlled.

Table 2.16. Types of Products Sold by Mutton Retail Shops in Damascus^a

product	Damascus			Total
	Low Income	Middle Income	High Income	
	----- No./Shops -----			
mutton	6	6	6	18
beef		1		1
offals	2		3	5
poultry		1	2	3
eggs			1	1
dry groceries		1	1	2
produce		1		1
other		1	1	2

^a

Mutton retail shops in Aleppo did not report selling any other products.

Table 2.17. Monthly Sales of Meat in Retail Mutton Shops in
Damascus and Aleppo, March, 1979^a

Products	DAMASCUS										ALEPPO									
	Low			Middle			High			Total	Low			Middle			High			Total
	Income			Income			Income				Income			Income			Income			
	1st	2nd	Qtr.	1st	2nd	Qtr.	1st	2nd	Qtr.		1st	2nd	Qtr.	1st	2nd	Qtr.	1st	2nd	Qtr.	
	Qtr.	Qtr.		Qtr.	Qtr.		Qtr.	Qtr.		Qtr.	Qtr.	Qtr.	Qtr.	Qtr.	Qtr.	Qtr.	Qtr.	Qtr.	Qtr.	Qtr.
	kg/mo-																			
Mutton	692	623	740	740	740	1287	1335	906	900	1050	1200	1000	1875	1800	1800	1800	1800	1183	1525	
Beef	-	-	50	50	-	-	-	17	17	-	-	-	-	-	-	-	-	-	-	
Offals	39	39	-	-	46	46	46	28	28	-	-	-	-	-	-	-	-	-	-	
Poultry	-	-	85	85	240	240	240	108	108	-	-	-	-	-	-	-	-	-	-	
Eggs	-	-	-	-	75	75	75	25	25	-	-	-	-	-	-	-	-	-	-	
Total	731	662	875	875	1648	1696	1084	1078	1078	1050	1200	1000	1875	1800	1800	1800	1800	1183	1525	

^aNot all stores in an income area reported sales of other products. Number recorded is average amount for all stores in income group.

Source: Survey of Mutton Butchers, March, 1979.

The number of carcasses sold per day by each butcher shop was small (Table 2.18). The peak days of sales generally occur on Thursday and Saturday corresponding to the days preceeding religious observances. The average number of carcasses slaughtered for mutton retail shops in Aleppo exceeded the Damascus shops. The number of carcasses sold in the high income area of Aleppo seems low compared to Damascus and could be due to the small number of shops interviewed in Aleppo. For the festival of Adha, which occurs approximately two months after Rammadan, butchers report increased sales of carcasses. A 100% increase occurs in Damascus and a 400% increase in Aleppo (Table 2.16). For the other religious festivities the number of carcasses sold does not vary from the average daily volume. The average amount of purchase per customer was higher in Aleppo, 1.21 kg., compared to Damascus, .50 kg. The average quantity purchased in middle income stores was higher than for stores in the other income areas (Table 2.18). What is most obvious is that average purchases in low income areas was reported the lowest of all income areas. The current price for mutton makes it more expensive than beef or poultry, explaining the lower quantity consumed.

Some stores reported purchasing uninspected carcasses from outside the legal marketing channel (Table 2.19). Because it is illegal to purchase uninspected carcasses, some respondents were hesitant to answer this question. There was evidence of stores which did not report purchasing uninspected carcasses while actually having them in their store. In Damascus, 66% of the stores interviewed reported purchasing uninspected carcasses. The largest majority reported purchasing carcasses (45%) while the rest (22%) purchased live animals which they slaughtered. Of those reporting purchases, the average number received was 1.2 carcasses per day. Because the market is free in Aleppo with no strong allegiance to the Butcher's Syndicate it was difficult to get an honest reply to this question. One respondent revealed he purchased 2 carcasses per day and knew many other butchers who did the same. Uninspected carcasses are the major sources of meat supplied in the cities of Damascus and Aleppo.

(iii). Wholesale Prices Paid and Retail Prices Received by Mutton Butchers

Wholesale prices paid by butchers in Damascus and Aleppo during the first quarter of 1979 are listed in table 2.20. Wholesale prices for locally produced mutton, supplied by the government's Meat Bureau, were lower than prices from private sources in either Damascus or Aleppo. The government is controlling the price of carcass meat to butchers in an attempt to keep retail prices from rising. The wholesale price for mutton from local production is S.L. 12.75/kg. in Damascus while imported chilled mutton sells at S.L. 13.50/kg. Imported frozen mutton is sold only at government stores at controlled prices. Prices for other products purchased by mutton shops are listed in table 2.20.

Butchers have differentiated prices for various cuts of meat from the

Table 2.18. Average Sales of Mutton per day and during religious festivities in Damascus and Aleppo

Sales/Day	DAMASCUS				ALEPPO			
	Low Income	Middle Income	High Income	Total	Low Income	Middle Income	High Income	Total
- - - - - (carcasses/day) - - - - -								
<u>Weekdays:</u>								
Sunday	1.0	1.1	1.8	1.3	2	2.0	1.5	1.9
Monday	.8	1.1	1.8	1.3	1.5	2.0	1.5	1.7
Tuesday	1.0	1.1	1.8	1.3	1.5	2.0	1.5	1.7
Wednesday	.8	1.1	1.8	1.3	1.5	2.0	1.5	1.7
Thursday	1.3	1.3	2.3	1.6	1.5	3.0	2.0	2.3
Friday	-	-	-	-	-	-	-	-
Saturday	1.2	1.3	2.2	1.5	2.5	2.0	1.5	2.0
Ave. Daily Sales	1.0	1.2	2.0	1.4	1.8	2.2	1.6	1.9
<u>Festivities:</u>								
Ramadan	1.7	1.5	2.7	2.0	2.0	2.0	2.0	2
Adaha	1.7	1.8	5.3	2.9	7.0	10.0	5.0	8
Christmas	1.2	1.3	2.0	1.5	2.0	2.0	1.5	1.8
Easter	1.2	1.3	2.0	1.5	2.0	2.0	1.5	1.8
Sales per Customer (kg/person)	.41	.62	.48	.50	.5	2.0	1.0	1.21

Source: Personal interview, March, 1979

Table 2.19. Source of Uninspected Meat Not Purchased from Slaughter House.

	DAMASCUS		ALEPPO	
	No.	%	No.	%
Stores Not Buying Uninspected Carcasses	6	33	6	86
Stores Buying Uninspected Carcasses	8	45	1	14
Stores Buying Animals and Slaughtering	4	22	-	-
Average Carcasses Purchased/day (no)	-	1.2	-	2

Table 2.20. Wholesale prices paid for meat by Mutton Butchers and Prices Received for Meat in Damascus and Aleppo.

Product	DAMASCUS				ALEPPO			
	Low Income	Middle Income	High Income	Total Shops	Low Income	Middle Income	High Income	Total Shops
----- (S.L./kg.) -----								
<u>Wholesale Prices Paid:</u>								
Mutton								
Fresh Local-Govt.	12.75	12.75	12.75	12.75	-	-	-	-
Imported Meat-Govt.	13.50	13.50	13.50	13.50	-	-	-	-
Fresh Meat-Private	12.75	16.40	14.00	14.40	13.60	13.60	13.38	13.49
Poultry	-	8.00	8.45	8.23	-	-	-	-
Eggs (doz.)	-	-	3.40	3.40	-	-	-	-
Offals	15.00	-	20.00	17.50	-	-	-	-
Beef	-	17.00	-	17.00	-	-	-	-
<u>Retail Prices Received:</u>								
Mutton:								
Boneless	22.17	22.50	24.33	23.00	21.00	23.00	23.50	22.50
Mixed	14.92	16.25	18.17	16.44	16.00	16.80	16.00	16.27
Fat	5.50	7.00	5.00	5.83	8.00	8.00	8.00	8.00
Poultry	-	8.50	9.00	8.75	-	-	-	-
Eggs	-	-	3.50	3.50	-	-	-	-
Offals	18.00	-	22.00	20.00	-	-	-	-
Beef	-	18.00	-	18.00	-	-	-	-

carcass (table 2.20). The price for lean boneless meat was the highest in the high income areas of Damascus at S.L. 24.33/kg which is above the government controlled price of 21.50. Prices for lean boneless mutton in Aleppo were slightly lower, averaging S.L. 22.50. Average prices for mixed meat (50% lean and red meat and 50% fat) were slightly higher in Damascus than Aleppo. The fat of the carcass besides being mixed is sold separate. The retail price for fat was reported lower in Damascus than Aleppo. Wholesale and retail prices for other products sold by shops are listed in table 2.20.

(iv). Sale of Mutton Carcasses

Butchers were asked how they normally cut-up their sheep carcasses (table 2.21). Because in Damascus, where butchers receive different types of carcasses, (locally fattened or imported), an average between the major types was selected. The largest percentage of the carcass, 36%, was sold as mixed meat, i.e. 50% red meat and 50% as fat. Even though government controls prices, butchers can easily mix in more fat trying to minimize the loss from carcasses with a large percentage of fat. A relatively small percentage of the carcass was sold as lean red meat, 28%. Bones had no value and were estimated at 18% of the carcass weight. The percentage of fat sold from a carcass was estimated at 18%.

The gross margin on two types of carcasses if sold at government controlled prices by butchers in Damascus is calculated in table 2.22. For a fattened Turkish sheep (Hamara), the butcher would lose S.L. 2.50 per carcass if sold at government controlled prices. For imported carcasses from Romania and Bulgaria, the gross margin was S.L. 14.00 per carcass. The difference between the margins was because of the high fat content in fattened Turkish sheep. Because of the lower live-weight price of Hamara or Herrick breeds, the Meat Bureau purchased more of these animals for the Damascus market. The preferred Awassi breed has a higher liveweight price in the market and many are exported.

(v). Performance of Butcher Shops

As an indicator of performance of the retail butcher shops, costs and returns to the shops were estimated in table 2.23. Gross returns, before cost of operations, indicated that butchers' shops in Damascus have a gross monthly return of S.L. 1,289 and for Aleppo, S.L. 1,698. The stores in the higher income areas had the largest gross revenues (table 2.23). The shops in low income areas had the lowest returns of paying for the meat. In low income areas, butchers reported charging close to government's control prices, and the number of carcasses slaughtered per day was low. Shops in higher income areas reported charging higher retail prices. Butchers in the high income area reported selling more carcasses per day.

Net returns to butcher shops varied according to income areas. Higher income areas had higher net returns. Overhead consisted of monthly rent, utilities, and licenses paid by the butcher. Shops in low income areas were

Table 2.21. Average Dressing Percentages for Sale of Meat From Different Types of Carcasses Reported by Butchers in Damascus.

Item	Locally Fattened Turkish Sheep	Imported Carcasses by Meat Bureau	Average for all Carcasses
	- - - - - (%) - - - - -		
Boneless meat	23	32	28
Mixed meat	36	35	36
Bones	15	23	18
Fat	26	10	18
Total	100	100	100

^aCarcasses are imported by air from Romania or Bulgaria.

Table 2.22. Average Dressing Percentages for sale of meat from Different Types of Carcasses Reported by Butchers in Damascus

Item	Locally Fattened Turkish Carcass ^a	Imported Carcass ^b
<u>Revenue:</u>		
Boneless Meat (S.L. 21.50/kg)	148.35	137.60
Mixed Meat (S.L. 15.00/kg)	162.00	105.00
Fat (S.L. 9.00/kg)	70.20	41.40
Gross Revenue	380.55	284.00
Cost of Carcass ^c	382.50	270.00
Gross Margin	-(2.50)	14.00

^a Average carcass weight for locally fattened turkish sheep is estimated to be 30 kg.

^b Average carcass weight for imported carcasses was assumed to be 20 kg.

^c Government price of locally fattened sheep (S.L. 12.75) and imported (S.L. 13.50).

Table 2.23. Average Monthly Costs and Returns for Mutton Butcher Shops in Damascus and Aleppo

	DAMASCUS						ALEPPO									
	Low		Middle		High		Low		Middle		High					
	No.	Income	No.	Income	No.	Income	No.	Income	No.	Income	No.	Income				
	(L.S./Shop)	(L.S./Shop)	(L.S./Shop)	(L.S./Shop)	(L.S./Shop)	(L.S./Shop)	(L.S./Shop)	(L.S./Shop)	(L.S./Shop)	(L.S./Shop)	(L.S./Shop)	(L.S./Shop)				
Revenue																
Mutton	6	10,596	6	12,092	6	22,351	18	15,013	2	16,737	3	16,972	2	25,185	7	19,251
Offals	2	2,124			3	2,024	5	2,064								
Poultry			1	4,335	2	6,480	3	5,765								
Eggs					1	1,575	1	1,575								
Beef			1,	5,400			1	5,400								
Gross Revenue	6	11,304	6	13,715	6	25,786	18	16,935								
Costs:																
Mutton ^a	6	10,540	6	11,271	6	20,109	18	13,973	2	16,279	3	14,985	2	22,679	7	17,553
Offals	2	1,770	-	-	2	1,840	4	1,805								
Poultry	-	-	1	4,080	2	6,084	3	5,416								
Eggs	-	-	-	-	1	1,530	1	1,530								
Beef	-	-	1	5,100	-	-	1	5,100								
Cost of Meat	6	11,130	6	12,801	6	23,005	18	15,241	2	16,279	3	14,985	2	22,679	7	17,553
Gross Returns	6	174	6	914	6	2,781	18	1,289	2	458	3	1,987	2	2,506	7	1,698
Overhead	6	116	6	200	6	195	18	171	2	339	3	117	2	235	7	214
Wages	6	90	6	98	6	510	18	233	2	750	3	353	2	490	7	506
Net Returns	6	-(32)	6	616	6	2,076	18	886	2	-(631)	3	1,517	2	1,781	7	979
Butcher's Estimated Net Return	6	550	6	1,017	6	984	18	850	1	1,350	3	2,250	2	1,125	6	1,725

^a Average wholesale price for mutton for butcher shops in Damascus was S.L. 13.13.

shown to have a loss after paying for overhead and wages. It would be reasonable to assume that all shops make a net profit by either adjusting the mixture of lean to fat and bone or selling above the government controlled prices. Butchers were asked to give an estimate of their net returns per month and the average for Damascus was L.S. 850 and in Aleppo L.S. 1,725. Net profits are lower in Damascus because of the restriction in available supplies from Meat Bureau and the high cost of carcass meat from illegal slaughters.

The decrease in performance in low income areas is due to the fact that shops maintain on the average two employees but sell only one carcass per day and no other animal products. Sales per employee are low. In the higher income area of Damascus, shops sell three times as much mutton as in the low income area and also sell other meat products. The middle and higher income area shops have larger net returns because of increased volume of sales as well as selling above government controlled prices.

(vi). Performance of Marketing System for Mutton in Damascus

Butchers in Damascus were asked their opinion of the quality of carcasses received from the Meat Bureau (table 2.24). The majority of the butchers (83%) said the meat was either fair or poor. In the low and middle income areas, the largest number of respondents said the quality of meat was fair. This would correspond to areas where more fat on the carcasses is tolerable to consumers. In high income areas, 50% of the butcher shops said carcasses were poor mainly because of the high ratio of fat on the carcasses which is not preferred by customers who eat lean red meat.

The major reason given by butchers as to why the quality of meat was only fair or poor was that carcasses were too fat (table 2.25). On occasion, butchers complain, they have to return carcasses to the slaughter house because of large fatty tails. Transport charges to and from the plant must be paid by the butcher. In several visits to the slaughter plant, butchers could be seen on the loading dock trying to negotiate for a replacement carcass. Seven respondents also complained that carcasses from the Meat Bureau were too small. Because the Meat Bureau does not grade carcasses, butchers have no control over selection but pay the same price.

Approximately 45% of the butchers interviewed in Damascus said they purchased carcasses from private merchants (table 2.26). When asked to compare quality of carcasses received from private merchants to those from the Meat Bureau, four butchers said they preferred buying from private merchants because they can choose their carcasses (table 2.26). Ability to choose carcasses, and therefore have control over quality and quantity, seems most important to butchers. Butchers in Damascus were also asked to evaluate the present marketing system with the Meat Bureau compared to before when butchers received carcasses from private sources (table 2.27). Close to 100% of the butchers said their operations were better when the private merchants were supplying carcasses. The major reason given was that

Table 2.24. Butcher's Opinion of Quality of Mutton Received From the Meat Bureau in Damascus.^a

	DAMASCUS							
	Low Income		Middle Income		High Income		Total	
	No.	%	No.	%	No.	%	No.	%
<u>Response:</u>								
Good	1	17	1	17	1	17	3	17
Fair	3	50	4	66	2	33	9	50
Poor	2	33	1	17	3	50	6	33
Total	6	100	6	100		100	18	100

^aThis applies only to Damascus where the Meat Bureau controls the supply.

Table 2.25. Reasons given why Respondents Rated Quality of meat as Fair or Poor Received from Meat Bureau in Damascus.^a

	<u>Respondents^b</u> No.
Carcasses too fat	15
Carcasses too small	7
Carcasses not slaughter in Muslim custom	2
Carcasses imported have odor	2

^aThis applies only in Damascus where Meat Bureau has control of supply.

^bEach respondent could give more than one response.

Table 2.26. Comparison in Quality of Meat Between Carcasses Received from Meat Bureau and those from Private Merchants in Damascus.^a

	<u>Respondents</u> No.	<u>Percentage of</u> <u>Total Sample</u> %
Choice in buying carcasses from private merchants	4	22
Meat is cleaner from private merchants	1	6
No difference	1	6
Other	2	11
Total	8	45

^aOnly respondents who purchased from private sources were asked this question.

Table 2.27. Response by Butchers in Damascus as to whether their operation is better "now" with supplies from Meat Bureau or "before" with supplies from Private Sector.

	<u>Respondents</u>
	No.
Operation better now with Meat Bureau	0
Operation better when Meat Bureau was grad- ing carcasses	1
Operation better before with Private Sector	17
<u>Reasons why better before with Private Sector:</u>	
Better Quality Meat	12
Adequate supplies	4
Price reflects quality	2
Choice in buying	2
Other	1

the quality of meat received was better. Other butchers complained that supplies were not sufficient for their customers. The general assessment of the performance of the marketing system in Damascus is poor. Because of current pricing policies, the Meat Bureau has to purchase lower quality animals for the Damascus market. Even then, supplies are not adequate because the Meat Bureau with higher volume would sustain even higher financial losses than currently they do.

Compared to Damascus, butchers in Aleppo had fewer complaints about the marketing system. A few butchers did complain that the government set retail prices too low, but it is unlikely that many would adhere to them anyway. While a few butchers did complain that the delivery of carcasses for the slaughter plant was not reliable and that they would prefer earlier delivery, in general, most butchers had few problems.

(b). Beef Retail Shops in Damascus and Aleppo

(i). Description of the Shops

The beef retail shops were surveyed in each city by income areas. Fewer shops were surveyed because of the smaller number of butchers in each city. Characteristics of the beef butcher shops are described in Table 2.28. In both cities, the distribution of beef is relatively free to private merchants. The mohafazat of each city does control beef prices in each location. Beef shops in Aleppo are larger than those interviewed in Damascus. Shops in both locations have approximately the same hours of operation. The average number of employees was lower in the beef retail shops in general than in the mutton retail shops interviewed (table 2.13). The majority of beef shops had display cases. The operator was typically also the owner of the shop and did not have other sources of income or own other meat shops. The general cleanliness of the beef shops was good.

(ii) Record Sales

Unlike mutton retail shops in Damascus, very few shops reported selling other items besides beef. In Damascus, two beef shops reported sales of offals of cows and one shop sold dry groceries. In Aleppo, no beef shops interviewed sold other meat products besides beef. Sales of meat by income areas are listed in table 2.29. No, butcher shops in the high income areas of Aleppo were located. Beef is a product which is preferred by the middle and low income classes.

In the first quarter of the year, butcher shops in Aleppo reported average sales of 2,063 kg/month which was higher than shops in Damascus reported during the same period. Sales fell off during the second quarter in Aleppo which corresponds to increased availability of mutton (table 2.17). The amount of beef consumed in Aleppo is higher than in Damascus. In Damascus, sales of beef fell slightly from the first to the second quarter from 1,667 kg to 1,283 kg. per month. The availability of mutton in the market can explain the fall in the consumption of beef. The retail shops in the higher income areas of Damascus did mention sales of other meat products (table 2.29). Quantities

Table 2.28. Characteristics of Private Beef Butcher Shops in Damascus and Aleppo, March, 1979

Item	Unit	DAMASCUS				ALEPPO			
		Low Income	Middle Income	High Income	Total	Low Income	Middle Income	High Income	Total
Shops Surveyed	no.	2	2	2	6	1	3	-	4
Size of shops	sq.ft.	200	144	225	190	200	374	-	289
Ave. time open	am	7:30	7:30	8:15	8:00	8:00	7:00	-	7:30
Ave. time closed	pm	6:00	3:00	5:00	5:00	8:00	2:00	-	5:00
Closed on Friday	%	50	100	100	83	100	100	-	100
Ave. Employees/ Shop	no.	2	2	3	2.3	2	3.6	-	2.8
Fulltime employees	%	100	100	50	83	100	100	-	100
Operated by relatives	%	100	50	50	67	100	33	-	50
Owner in Syndicate	%	0	50	100	50	100	100	-	100
Regrigeration	%	100	100	100	100	100	100	-	100
Display case	%	50	100	100	83	100	100	-	100
Freezer	%	50	50	50	50	100	100	-	100
Operator/owner	%	100	100	100	100	100	100	-	100
Owner has other job	%	0	50	0	17	0	0	-	0
Operator owns other shop	%	0	0	0	0	0	0	-	0
Cleanliness of store		fair	good	good	good	poor	N.A.	N.A.	-

Table 2.29. Monthly Sales of Meat in Retail Beef Shops in Damascus and Aleppo

Products	DAMASCUS										ALEPPO												
	Low			Middle			High			Total	Low			Middle			High			Total			
	Income		1st Qtr.	Income		1st Qtr.	Income		1st Qtr.		Income		1st Qtr.	Income		1st Qtr.	Income		1st Qtr.				
	1st	2nd		1st	2nd		1st	2nd			1st	2nd		1st	2nd		1st	2nd		1st	2nd	1st	2nd
	Qtr.	Qtr.		Qtr.	Qtr.		Qtr.	Qtr.		Qtr.	Qtr.		Qtr.	Qtr.		Qtr.	Qtr.		Qtr.	Qtr.		Qtr.	Qtr.
	----- kg/mo -----																						
Beef	1,200	1,200	1,550	1,325	45	75	38	150	375	150	1,200	600	2,350	1,490	-	-	2,063	1,268	-	-			
Offals	12	12	45	45	75	38	44	32	-	-	-	-	-	-	-	-	-	-	-	-			
Mutton	-	-	-	-	300	150	100	50	-	-	-	-	-	-	-	-	-	-	-	-			
Other ^a	-	-	-	-	450	375	150	125	-	-	-	-	-	-	-	-	-	-	-	-			

^a Bacon and preserved meat.

of these products were reported to fall between the first and second quarters.

Daily volume of sales of beef are estimated in Table 2.30. In Damascus, average daily sales progressively increased from low to high income areas. Average daily sales in Damascus were 48 kg/day. The days of the week with the highest sales were Thursday and Saturday, the days before religious observances. For the butcher shops interviewed in Aleppo, sales were highest Saturday and Sunday. Average daily sales were reported for the three shops at 42 kg/day. For religious holidays, butchers in Damascus reported greatest sales during the feast of Adaha of 105 kg/day. Because of the higher Christian population in Aleppo, sales of beef were highest during Christmas and Easter.

Consumption of beef is higher in the Christian and Palestinian areas of Damascus. Average purchases by customers per week were 2.5 kg in low income areas; higher than in the high income areas. The same income characteristic was observed in Aleppo with average purchases per week of 2 kg.

(iii). Wholesale Prices Paid and Retail Prices Received by Beef Butchers

Wholesale prices paid by butchers for beef are listed in table 2.31. A few butchers reported the price paid for live animals in Damascus at S.L. 5.50 per kg. (These butchers did the slaughtering themselves using slaughterhouse facilities.) The price of dead weight carcass meat was reported to be S.L. 14.00 per kg by butchers in Damascus which seems higher than normal. Butchers in the slaughter house reported selling carcasses to butchers at S.L. 11.50 kg. Butchers interviewed in the middle and high income areas of Damascus reported purchasing either pieces of carcasses or deboned red meat from private meat merchants. The average price was S.L. 15.60 per kg. In Aleppo, beef butchers reported purchasing the carcasses for S.L. 11.55, about the same price recorded by butchers at the slaughter house in Damascus. Several butchers in Damascus reported selling offals with an average purchase wholesale price of S.L. 17.00. Only one or two butchers sold other meat products. Retail prices received for meat sold by beef butchers are listed in table 2.31. Prices for boneless red meat sold on the average for S.L. 17.83 per kg., higher than equivalent cuts of beef in Aleppo. The price for mixed beef with fat was lower in Damascus than Aleppo, S.L. 12.00 versus S.L. 13.06. Retail prices for other meats sold in Damascus were similar to mutton shops. Boneless mutton was selling for S.L. 25.00 per kg. in shops in high income areas.

(iv). Recorded Sales of Beef

To determine cost and returns to the butchers from their operations, butchers were asked to determine the dressing percentage and how he sells a carcass. In table 2.32, butchers in the survey, who purchased carcass meat, estimated that on the average, 36% of the carcass was sold as boneless red meat and 27% was sold as beef mixed with fat. Approximately 25-27% of the

Table 2.30. Average Sales of Beef per Day and During Religious Festivities in Damascus and Aleppo

Sales/day	DAMASCUS				ALEPPO			
	Low Income	Middle Income	High Income	Total --(kg.)	Low Income	Middle Income	High Income	Total
<u>Weekdays:</u>								
Sunday	27	52	37	39	N.A.	53	-	53
Monday	27	52	50	43	N.A.	35	-	35
Tuesday	27	52	63	47	N.A.	33	-	33
Wednesday	27	52	51	43	N.A.	35	-	35
Thursday	37	52	85	58	N.A.	33	-	33
Friday	37 ^a	-	-	37 ^a	N.A.	-	-	-
Saturday	27	52	85	55	N.A.	65	-	65
Ave. Daily Sales:	30	52	62	48	N.A.	42	-	42
<u>Festivities:</u>								
Ramadan	32	57	80	56	100	42	-	71
Adaha	32	57	225	105	100	42	-	71
Christmas	32	57	145	78	N.A.	90	-	90
Easter	32	57	150	80	N.A.	90	-	90
Ave. Sales per Customer/wk.	2.5	1.5	2	2	2	1.6	-	1.8

^aOne store was open on Friday.

Table 2.31. Wholesale Prices Paid for Meat by Beef Butchers and Prices Received for Meat in Damascus and Aleppo.

Product	DAMASCUS			ALEPPO				
	Low Income	Middle Income	High Income	Total	Low Income	Middle Income	High Income	Total
--(S.P./kg.)--								
Wholesale Prices Paid:								
Beef:								
Live Animal	5.50	-	-	5.50	-	-	-	-
Carcass Weight	14.00	-	-	14.00	11.50	11.60	-	11.55
Boneless Beef		15.25	16.00	15.60	-	-	-	-
Offals: ^a								
Mutton	14.00	14.00	20.00	17.00	-	-	-	-
Other			18.00	18.00	-	-	-	-
			15.00	15.00	-	-	-	-
Retail Prices Received:								
Beef:								
Boneless	16.50	17.00	20.00	17.83	15.00	15.30	-	15.23
Mixed	12.00	-	-	12.00	12.50	13.25	-	13.06
Fat	1.00	-	-	1.00	5.00	5.00	-	5.00
Offals:								
Mutton		-	25.00	25.00	-	-	-	-
Other		-	18.00	18.00	-	-	-	-

^aMutton purchased have been the best quality parts custom ordered.

Table 2.32. Percentages of Beef Carcass Sold as Meat by Butchers in Damascus and Aleppo.

Product	Damascus	Aleppo	Total Average
	- - - - - (%) - - - - -		
Boneless Red Meat	36	35	36
Meat with Fat	27	30	29
Bones	27	25	26
Fat	10	10	10

Source: Personal interview, March, 1979.

carcass was reported as being bone and had no value while 10% was sold as fat. Because the bone is not sold with the meat, it must be considered as a loss to butchers and must be recovered in the sale of other parts of the carcass.

(v) Performance of Butcher Shops

Performance of the beef retail shops can be judged by estimating costs and returns to the firm. Based on the dressing percentages in table 2.32, average and gross net returns are estimated in table 2.33. The results are somewhat misleading indicating that the average beef and butcher shops in Damascus and Aleppo have a monthly net loss of S.L. 629 and S.L. 4,596, respectively. This loss occurs from either the sale percentage of each carcass or the price reported for the types of meat sold. Given the percentages of types of meat sold from each category (table 2.32), the gross margin for the low income butchers in Damascus was a loss of S.L. 2994 per month. If these butchers are breaking even, they must sell boneless and mixed meat at higher prices than they reported. When butchers were asked to make a personal statement of their monthly net profit the average reported was S.L. 2,515 in Damascus. Several butchers in the middle and high income areas reported paying fines last year for selling above government prices. The fines paid in some cases exceeded S.L. 1,500 in 1978.

Beef butcher shops in the middle and high income areas in Damascus had monthly gross profits of L.S. 2,757 and L.S. 4,500 respectively, and net profits of L.S. 1,874 and L.S. 3,415. The reason these groups of butchers report making profits is that they purchase and sell deboned or parts of carcasses and do not suffer any loss from bones or fat in the carcasses. Butchers in these stores, being supplied by private wholesale merchants, can return meat which does not meet the satisfaction of the butchers.

In Aleppo, the four beef butchers interviewed had an average gross loss of L.S. 3,705 based on their reported percentages of sales of meat from carcasses and prices paid and received for meat (table 2.33). Butchers in Aleppo did not report selling other meat products as did butcher shops in the high income areas of Damascus. Butchers were asked to estimate their monthly net profit. The four butcher shops reported an average net profit of L.S. 2,313 per month, with a high of L.S. 4,500 and a low of L.S. 1,000 for the four shops. The wide discrepancy between the two estimates of net profit items comes from the fact that butchers were suspicious in speaking with the researchers because of recent government investigations and fines. If the butchers' estimates as to their percentages of the carcass sold as meat are assumed to be accurate, then butchers must sell above the government's control prices in order to stay in business.

(c) Government Retail Shops in Damascus

The General Consumption Institute in the Ministry of Supply owns and operates 10 meat shops and several supermarkets as sales outlets for meats in Damascus. Three of the ten meat shops were interviewed to serve as a

Table 2.33. Average Monthly Costs and Returns for Beef Butcher Shops
Damascus and Aleppo

	DAMASCUS						ALEPPO									
	Low		Middle		High		Total		Low		Middle		High		Total	
	Income		Income		Income		Income		Income		Income		Income		Income	
	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value
Revenue:																
Beef	2	15,198	2	26,350	2	45,000	6	26,258	1	14,650	3	30,478	-	-	4	26,815
Offals	1	528	1	1,350	1	3,300	3	1,726	-	-	-	-	-	-	-	-
Mutton	-	-	-	-	1	15,000	1	15,000	-	-	-	-	-	-	-	-
Other	-	-	-	-	1	8,100	1	8,100	-	-	-	-	-	-	-	-
Gross Revenue	2	15,462	2	27,025	2	54,150	6	30,971	1	15,047	3	30,478	-	-	4	26,815
Costs:																
Beef	2	18,288	2	23,638	2	36,000	6	25,975	1	17,400	3	34,892	-	-	4	30,520
Offals	1	336	1	1,260	1	3,000	3	1,532	-	-	-	-	-	-	-	-
Mutton	-	-	-	-	1	10,800	1	10,800	-	-	-	-	-	-	-	-
Other	-	-	-	-	2	6,750	2	6,750	-	-	-	-	-	-	-	-
Cost of Meat	2	18,456	2	24,268	2	49,650	6	30,791	1	17,400	3	34,892	-	-	4	30,520
Gross Return	2	(2,994)	2	2,757	2	4,500	6	180	1	-(2,353)	3	-(4,414)	-	-	4	-(3,705)
Overhead	2	161	2	308	2	510	2	326	1	208	3	959	-	-	4	771
Wages	2	-	2	575	2	575	2	483	1	-	3	160	-	-	4	120
Net Return	2	-(3,155)	2	1,874	2	3,415	6	-(629)	1	-(2,561)	3	-(5,533)	-	-	4	-(4,596)
Est. Net Return	1	1,547	2	1,022	2	4,492	5	2,515	1	(1,000)	3	2,750	-	-	4	2,313

comparison to the private butcher shops (table 2.34). The government shops were fairly standardized in their operation, opening at 7:00 a.m. and closing at 2:30 p.m. every day except Friday. Each shop had approximately two employees. Since most of the meat was prepacked, one employee distributed the meat while another collected the cash. All shops had modern facilities with an average store size of 136 sq. ft. Two out of the three shops had display cases and all had a freezer. The operation was efficient and shops were in good and clean condition.

Unlike the private shops, the number of employees was held to a minimum. Labor requirements could be minimized since the deboning of carcasses was done at the slaughter house. The government shops maintained a higher standard of sanitation than was witnessed in most shops in the private sector. Consumers seemed satisfied with the operation of meat shops judging from the queues of customers waiting to receive meat in the mornings.

(ii) Recorded Sales

Government meat shops are the only retail meat outlets allowed to sell different types of meat products. The average monthly sales for the three meat shops was 19,890 kg. per shop which far exceeds the volume of sales in the private shops (table 2.35). Frozed mutton is sold only in government meat shops because the government sets the price lower than fresh mutton and strives to prevent mixing the two meats. The average monthly sales of beef in government shops approximately equals the average sales of beef in the private shops (table 2.29). Government meat shops also sell poultry and fish with average monthly sales of 3,000 kg. and 600 kg., respectively. In contrast to the private sector, government shops serve a larger number of customers per store offering a wider selection of products. Unlike in the private shops, all meat which is sold is inspected for diseases. Government shops are able to maintain their advantage in the market by receiving adequate supplies of meat, which are bought and sold at government controlled prices. Mutton butchers who need to supplement supplies of meat must buy from private merchants at a higher cost.

(iii) Wholesale and Retail Government Prices in Damascus

Government retail prices are set by the Supreme Agricultural Council after recommendations from the Ministry of Supply. In Damascus, wholesale and retail prices for meat are listed in table 2.36. The difference in the wholesale price between fresh mutton (local) and imported frozen mutton is L.S. 4.10/kg. Prices for the two types of products can vary at retail which the government prevents by limiting the sale of frozen mutton to only government stores. Boneless beef sells for approximately L.S. 5.50 less than boneless fresh mutton. In the private sector, retail prices for fresh mutton exceeded the government's controlled prices.

(iv) Performance of Government Retail Shops

Because of the large volume of sales and low overhead costs, the government shops operate more efficiently than the private shops. More

Table 2.34. Characteristics of Government Meat Shops in Damascus

Shops surveyed (no.)	3
Ave. size of shops (sq.ft.)	136
Ave. time shops open (a.m.)	7:00
Ave. time shops close (p.m.)	2:30
Shops closed on Friday (%)	100
Ave. employee/shop (no.)	2.5
Shops with refrigeration (%)	100
Shops with display case (%)	67
Shops with freezer (%)	100
Manager has other job (%)	0
Cleanliness of store (ave.)	good

Source: Personal Interview, March, 1979

Table 2.35. Average Monthly Sales of Meat Per shop from Government Meat Shops in Damascus

products	1 st Qtr.	2 nd Qtr.
	----- (kg/mo) -----	
mutton fresh	8,120	8,700
mutton frozen	5,600	6,000
beef	1,484	1,590
poultry	2,800	3,000
fish	560	600
total	18,564	19,890

Source: G.O.M.

Table 2.36. Wholesale and Retail Prices for Meat from Government Shops in Damascus in March and April, 1979

Product	Wholesale Price	Retail Price
	- - - - - (L.S./kg.) - - - - -	
Fresh Mutton:	12.75	
Boneless		21.50
Bone-in		12.50
Fat		9.00
Thigh (hind)		17.00
Thigh (fore)		16.50
Other		15.50
Frozen Mutton (bone-in):	8.65	
Leg (hind)		12.00
Leg (fore)		11.00
Stomach area		5.50
Wholesale carcass		9.50
Beef:	11.00	
Boneless		16.00
Mixed (50/50)		10.00
Fish:		3.40
Poultry:		
Fresh	7.60	8.00
Frozen		7.50

Source: Meat Organization in Ministry of Supply.

customers are capable of being served due to the fact that some meat products have been prepackaged and weighed, so service time is kept at a minimum. Some customers did complain about the odor of the pre-packaged mixed meat. Other than that, few complaints were expressed by store managers.

The average net profit for the ten government meat shops in Damascus was estimated at L.S. 160/day by the Meat Bureau. This places their average monthly net profit at higher than that reported by private butchers in the high income areas of Damascus. The advantages of selling several products which have been packaged and weighed at a central location allows for increased customer satisfaction at lower operation costs than present in the private sector.

2.2.4 Marketing Institutions

There seems to be a lack of marketing institutions which could improve the level of efficiency in the present marketing for livestock and meat. Where government has entered the marketing system, it has been to dominate and control rather than facilitate the movement of products. The meat marketing system in Damascus is an example where government's control has led to low levels of performance within the private retail sector and the rise in the illegal slaughter of animals not inspected prior to human consumption.

The sheep fattening cooperatives with over 3,000 members in 56 cooperatives throughout Syria are placed at a disadvantage of selling in a monopsonistic market place. The situation of no bargaining power held by cooperatives has caused increases in illegal exports of fattened sheep. When the Meat Bureau becomes the single most important domestic purchaser, cooperatives have difficulty in receiving the highest price possible for their product. No marketing institution exists to serve the needs of private, cooperative, or government fattening operations.

The Butcher's Association, which is supposed to represent the interests of butchers through the introduction of measures to correct disadvantages placed on private retailers, is an ineffective organization. The municipalities have control over butchers through ordinances and regulations. The regulation which forbids butchers from selling more than one type of meat product restricts their volume of sales which in turn forces shops to purchase uninspected carcasses from outside the government's control.

2.2.5 Purchasing and Credit Facilities

The private merchants located in the larger urban centers in the sheep production regions of Syria have a cooperative agreement with Bedouins to raise sheep on a share basis. The private merchant provides capital for purchasing animals, and the bedouins are responsible for managing the animals. In the past, almost all sheep on the Steppe were owned by merchants. The milk, wool, and lambs would go to the merchant

until the bedouin had paid for his share of the sheep. It is now estimated that 70% of sheep in Steppe are owned by bedouins. The change in the structure can be traced to easier credit being made to bedouins to purchase animals and their not being dependent of private merchants. Government loans at low interest have become easier for producers. Better credit facilities have been made available for the sheep fattening cooperatives to purchase feed and lambs for their operations. Purchasing and credit facilities are not seen as a constraint in the marketing system for livestock and meat.

2.2.6 Market Information Systems

A system of market information has not been developed in Syria, placing the producer at a disadvantage in the market place. Producers have a basic understanding of market facilities and prefer not to sell livestock outside an organized market. Bedouins were reluctant to sell animals from their herds in the Steppe. The major markets, which lie on the northern and western boundary of the Steppe, become important trading centers for sheep from the Steppe.

Producers are at a disadvantage in these markets because they might trek long distances and then only sell a few head of livestock. Producers prefer to sell their animals at a lower price rather than return home with them. Market information from these central markets to producers in the Steepe has not been developed.

Because of the constant trading between markets in the Northwest and the large centers for sheep fattening in Homs, Hama, and Aleppo, market prices between these markets normally vary only by cost of transportation. The fattening centers operate fairly efficiently in purchasing fattening lambs or yearlings at the lowest cost, either from domestic sources or imports.

Within a large market like Homs, Hama, or Aleppo, prices can vary in a given day depending on whether or not the Meat Bureau must purchase sheep on the open market for sale in Damascus. Producers, because they are dispersed in groups in the market, may not be able to obtain the latest price information, with buyers having to approach them through an intermediary. More competitive bidding with general price information available and facilitated by an auction market system could give producers a more equal bargaining position in the market place.

If the Damascus market were decontrolled and market information on carcass prices in Homs, Hama, and Aleppo were improved, private retail shops in Damascus could have another alternative in the supply of mutton, making the system more competitive. Wholesalers in Hama could deliver boneless lean mutton for LS 18.75 per kg cost, plus transport, which still allows the butcher a return of LS 2.75/kg, based on government retail prices.

2.2.7 Grades and Standards

In general, there is a lack of grades and standards of livestock and meat products in the marketing system. In the livestock markets, producers do sell animals of the same breed, age, and sex which are for fattening or have been fattened. In Homs, Hama, and Aleppo, sellers and buyers would negotiate on an acceptable price per kilogram of liveweight for fattening sheep after which the group of animals would be weighed on a large weighscale. This practice could be the beginning of introducing an auction marketing system which requires standardization of live animals to facilitate in the exchange process.

An obvious lack of grades and standards has developed in the wholesale and retail meat market since the Damascus Government took control of the Damascus market in 1967. For three years, carcass meat sold by government to butchers was standardized and graded. After 1970, the system became cumbersome to handle and was disbanded. Now the government distributes meat in Damascus allowing no choice of carcasses on the premise that each butcher has an equal chance for a poor or good carcass. A major complaint by butchers was that they could not choose the quality and size of their carcass, and that price was not differentiated according to grade. In the other urban consumption centers, this problem does not occur because butchers can choose their carcasses paying a premium or discount based on quality of the carcass.

2.2.8 Degree of Competition

The degree of competition varies from stage to stage in the marketing system for livestock and meat. In the primary and secondary markets, competition is at its highest in the buying and selling of sheep. There are many large and small fattening operations which compete for live animals. The export market in neighboring countries keeps the market competitive for producers to receive the best price for their animals. Because prices are competitive, the Meat Bureau in the Ministry of Supply has difficulty in purchasing live animals at prices at which they can break even on in the Damascus market.

The government controls prices at the retail level and restricts supplies allowing only one meat product to be sold in a single shop. This policy generates excessive competition which lowers the efficiency in the operation of private shops. This has caused increases in the amount of illegal slaughters in Aleppo and Damascus where the government has entered some phases of the marketing system. In Damascus where the government has complete control of slaughter, distribution and some retailing, uninspected carcasses illegally slaughtered sell above the government's price. Butchers buy from this source primarily because the government cannot supply their needs.

2.2.9 Degree of Coordination

Coordination between stages in the marketing system has been allowed to develop to a limited extent only. Private sheep fattening operators are allowed to import, fatten, and then export 80% of their imports. Some butchers in Homs, Hama and Aleppo operated sheep fattening operations and sold deboned meat at wholesale in Damascus, and at the same time sold meat at retail in their own cities. Coordination between merchants and bedouin herders in purchasing and managing sheep has been an important system in the past but has changed because of available credit to bedouins. Because of the increase in government control in segments of the marketing system, integration of several marketing activities has not benefited operational and pricing efficiency. In Damascus, private retail shops can only sell one type of meat keeping volume low and sources of supplies limited. The retail sector loses because butchers could provide increased services at lower costs with increased coordination between wholesale merchants both in Damascus and in the meat surplus areas of Homs, Hama, and Aleppo.

2.3 Summary of Assessment

Performance of the marketing system for livestock-meat is good, where enough firms are allowed to operate, at providing goods and services at the lowest cost possible. Where government agencies enter the market as monopolies, supplier inefficiencies are present with greater costs having to be absorbed by the general public. Production and fattening of sheep in Syria is an example of an industry which is highly competitive producing fattened animals at least cost with available technology. The number of operations owned either by producers, private, cooperative, or government are sufficient so that the industry operates competitively.

Because there are restrictions in the types of sheep exported and the number of registered export licenses, illegal trade of sheep is reported to be high to the Gulf States. Large profits have been accrued to a few individuals who have received licenses to import sheep for fattening and reexport. Because the government controls retail prices at the mohofazat level and restricts exports, price incentives are not being passed on to producers to improve local herds. Better quality animals, especially the Awasse breed, are being exported illegally to the benefit of neighboring countries. Producers are not given incentives to cull unproductive rams and ewes from the herd which has been a factor in the overgrazed condition of the Steppe. The government would rather airfreight chilled carcasses from Romania and Bulgaria than to allow prices for domestically produced livestock to increase. The country may suffer two losses; first, some net loss in foreign exchange for the purchase of imported meat not covered by sheep exports, second, the loss of livestock which are smuggled to the Gulf States, purchased at a lower market rate in Syria than would be the case if there were not imports of carcasses.

Market facilities are rudimentary but adequate. Producers prefer to sell in an organized market where they believe they obtain a better price. Further

development of market facilities could enhance the operation leading to better market information and prices to producers. Market facilities provide few services to buyers or sellers to improve the efficiency of the exchange process. No major constraints exist in the transportation of livestock from markets to the final point of consumption. Internal transportation is readily available at reasonable rates set by the transport cooperatives. Transportation for the export of sheep is also available and not a problem.

For processing facilities, some of the slaughter plants are not maintained at sanitation levels for which they were designed. For the Damascus plant, which is operated by the municipality, the difficulty arises because two government agencies use the building and there is no overall managing director. This problem will be reduced when the government implements a proposed program of centralizing authority in the operation of the plant.

Operational efficiency in the two modern slaughter plants of Damascus and Aleppo are low resulting in annual losses having to be absorbed by the government. Government's monopolizing of the market, either partial or total, has resulted in high marketing charges and poor services. Individuals who have benefited are those who have slaughtered illegally selling carcasses to butchers at prices higher than government controlled wholesale prices. Butchers pass these costs on by charging higher retail prices.

In the two large urban centers of Damascus and Aleppo, government's system of transporting carcasses is below sanitation standards with some basic health procedures not being followed. In Aleppo, delivery of carcasses is not reliable, causing inconveniences to butchers. In Damascus carcasses could be handled in ways to minimize spoilage or contamination of meat. Simple procedures could be introduced at low cost to the overall operation.

Absence of grades and standards in the government controlled market of Damascus results in poor performance of the marketing system. Dissatisfaction with the system by butchers has benefited the trade in illegally slaughtered carcasses which further undermines government's services and facilities. Because government also restricts private meat shops from selling different meat products, butcher shops must either operate at a low volume of sale or transgress the ruling and sell different types of meat being subject to fines. Restricting types of meat sold, results in meat shops being less efficient having to pass the cost on to customers in the form of higher prices.

2.4 Recommendations and Project Proposals for Improvement in Marketing and Related Structures

2.4.1 Improvement in Marketing Facilities

In the major livestock areas of Homs, Hama, and Aleppo, livestock markets could be improved. Because of the volume in sales of sheep, auction facilities could be designed with holding pens to expedite the buying and selling of

animals. Simply designed and low cost facilities could minimize the difficulty in herding animals and allow more competitive market conditions. Improved weigh scales could be introduced to encourage sale by liveweight. Alternative market facilities could be studied in countries with production and management conditions similar to those of Syria. Any new market facility in Aleppo should be constructed near the slaughter plant to facilitate transport of animals.

The second phase of the project would be the improvement of the livestock market facilities in the smaller markets of Al Raqqah, Dier-er-zor, and Al Hasakah. Improvement in the cattle markets could also begin during this phase of the project.

2.4.2 Improvement in Marketing Institutions

Establishment of a Sheep Marketing Board

An agency such as a Sheep Marketing Board could be established to serve the interest of producers who are involved in sheep production and marketing. The Board could be designed to represent the interest of private and cooperative fattening operations. The Board would undertake the following responsibilities:

1. To collect, analyze and communicate marketing news through organized channels on domestic prices for sheep and meat, prices in neighboring export countries, volume of sales (daily, weekly or monthly), and other information necessary to facilitate marketing activities.
2. To advise government on changes in costs of production to keep the purchase price of the Meat Bureau in line with production costs and export prices.
3. To advise government on quantities of imported frozen and chilled carcasses which could depress domestic prices for fattened sheep and force increased illegal exports of live animals.
4. To advise government on import and export policies affecting the sheep industry. The Board would represent exporters to determine number of licenses and quantity to be exported. The Board would assist in negotiating export contracts.
5. To assist the industry by doing market research to improve its efficiency and performance. A research proposal for the Board would be to analyze the benefits to the industry in exporting chilled or frozen carcasses rather than live animals.

The Board could be designed based on examples of commodity marketing boards in other countries. A few of the basic principles would be:

1. Members of the Board of Directors would have representatives from private sectors, cooperatives, and government proportional to its members in the industry.
2. There would not be more than 15 members on the Board of Directors and members would revolve every two to three years.
3. The Sheep Marketing Board could be funded by a tax paid on fattened sheep sold by producers.
4. The funds would be used to pay salaries for a full-time managing director and staff of employees. Operating and overhead expenses for maintaining a head office in Aleppo would be paid from the fund.

The Board would be designed as a service organization to the industry and would not take possession of any livestock. (An alternative recommendation was made to the authors. This recommendation was a Meat Board consisting of members of all segments of the industry and including consumer representatives. It would produce data and information and provide overall coordination.)

Expanding Responsibilities of the Butchers Association

It is recommended that the Butchers Associations be given more control in supervising and servicing its members. Upgrading of services could be encouraged in the following areas:

1. Monitor standards in distribution and sale of meat in urban areas to improve sanitation and handling of meat.
2. Encourage the use of grades and standards in the wholesale of meat products. The Association could be allowed to represent butchers in negotiations where the Meat Organization controls slaughter and distribution to enact price differentials by quality of carcasses.
3. Register all butchers who operate in a mohafazat and enforce the sale of inspected meat.
4. Represent members in negotiations with local mohafazat administrations to allow butchers to expand the numbers of meat products sold by an individual shops.
5. Encourage cooperative arrangement among groups of butchers to operate as a single facility selling several types of meat products. This would reduce the excessive competitiveness currently in the urban market.

Modifications in Operating Procedures of Meat Bureau in Ministry of Supply

The Meat Bureau, as an established marketing institution, could improve the meat distribution system by introducing simple changes in pricing premiums and discounts based on grade and yield of their carcasses. Butchers would be allowed a choice in type of meat needed rather than random quality in delivered products. Unless the service of the Meat Bureau can be substantially improved, consideration should be given to turning distribution back to the private trade.

2.4.3 Improvement in Processing Facilities

Construction of Slaughter Plants in Homs and Hama

Modern slaughter facilities in Homs and Hama are needed to properly service these expanding urban areas. Slaughter plants in each city could be based on the design of the Aleppo plant which unlike Damascus has retaining pens for animals as they enter the killing floor. These additions would help minimize danger, particularly of cattle injuring employees.

The size of the slaughter plants in each city should be based on daily local consumption plus possible expansion of slaughter of sheep for shipment to Damascus and for export. Cold storage capacity would be sufficient to handle carcasses which might be transported to the Gulf States. Location of the new slaughter plants is important and should be easily accessible to the livestock market in each city. This encourages use of the plant by merchants who otherwise might slaughter in their homes.

Improvement in Slaughter Facilities in Aleppo and Damascus

Sanitation and handling procedures could be easily improved at low cost. Investment in cleaning detergents with stricter hygienic conditions should be required by each municipality. A program to implement these measures has been implemented in Damascus. These requirements should also be applied in the transportation of meat from slaughter house to butcher shops. Improvement in the transport vehicles servicing the Aleppo market need upgrading to alleviate chronic breakdowns.

New strategies by each municipality for increasing utilization of available slaughter capacity should be investigated. Private merchants who are currently slaughtering illegally in Damascus should be given incentives to use the slaughter plant. The municipality could make arrangements to do slaughtering for private sectors as well as for the Meat Bureau charging a fee that covers cost of operation. This will help to minimize the heavy losses in the Damascus plant. In Aleppo, there should be stricter enforcement in the sale of uninspected carcasses by the municipality. This will increase the supply of sheep utilizing unused capacity at the plant.

If all methods fail to restrict illegal slaughter and to encourage private sector to use municipal slaughter plants, alternative private slaughter plants which operate under state inspection could be allowed. The meat business is complex requiring decentralized decision making and the best operated meat businesses are run by the private sector. Even cooperatives have not been very successful in meat slaughter and distribution except in Scandinavian countries.

A Feasibility Study of the Wool Scouring Plant in Hama

Preliminary analysis indicates that the scouring plant in Hama is operating below expected performance and producing a product which is of inferior quality compared to production from the private sector. A feasibility study to judge the performance of the plant is recommended. Alternative strategies should be investigated in how to operate the plant to produce a quality product which could be economically used in Syria.

A possibility in the assessment would be to estimate the economic feasibility of importing greasy wool from New Zealand or Australia. This wool could be blended with Syrian wool and scoured at the Hama plant to produce a product with good top-to-yarn yield which could be spun for thread for the local textile mills. There are examples of countries which employ this marketing procedure to supply their local industry. With Syria's current imports of tops and yarn from West Europe, this project would help to reduce expensive imports and make the Hama plant a more viable operation.

3. ASSESSMENT AND RECOMMENDATIONS FOR THE POULTRY AND EGG SUBSECTOR

3.1. Description of the Subsector

The poultry industry in Syria has grown rapidly in recent years. By the Spring of 1979, the industry has reached self-sufficiency in egg production and is approaching self-sufficiency in meat production. Current egg production in Syria is between 800-900 million eggs per year. The General Organization for Poultry (GOP) estimated broiler production was between 21-22 million birds in 1978 which GOP estimated below demand requirements given prices of broiler, beef, and mutton meat.

On February 26, 1974 the GOP in the Ministry of Agriculture was established to assume full responsibility for the development of the poultry industry, both private and public sectors. Its ultimate objective was to achieve self-sufficiency in poultry meat and egg production. Since that time substantial investments have been made in both the public and private sectors. In 1978-79 capacity was still being added in both broilers and eggs.

The GOP has nine production units either under construction or in operation. Each operation is supposed to supply the needs of the surrounding region with minimal transportation of products to other regions. One government official estimated total production of eggs from the GOP's operations at 100 million eggs in 1979 and expects production to be 200 million in 1980. The public sector has been estimated to be producing 9 percent of the eggs and 28 percent of the chickens. In 1978/79 there were an estimated 189 commercial egg producers and 655 broiler producers. There are three large commercial hatcheries supplying the private sector. The GOP will begin construction in 1979 of hatcheries in Damascus, Homs, and Aleppo to produce layer parent stock and day old broiler chicks. Hatcheries should be operational by 1982 producing 72,000 layer parent stock per year and 12.8 million broiler chicks. Layer and broiler chicks will be distributed to government and private operations.

Growth in the poultry industry has been made possible by growth in the feed industry. Only the government's General Organization of Feed can import feedstuffs and minerals for feed rations. Poultry feed is sold either by government or by private mills who mix the feed ration bought from government. There were about 40 small private mills that sold 35% of their volume as poultry feed and 65% as feed for cattle and sheep. Sheep feeding utilized the largest share of government feed mills and poultry feed the smallest.

A thorough study of the Syrian poultry industry was made by Experience Incorporated of Minneapolis, Minnesota in November, 1976. At that time they reported a shortage of broilers at the official price because the private retail stores visited (September, 1976) had not been able to purchase sufficient quantities. In the meantime expansion took place and the General Consumption Institute followed a policy of importing frozen broilers to hold down the price of sheep meat. Despite the increase in official prices of beef and sheep meat, increased output of poultry meat has kept increases in official retail prices for dressed poultry to a minimum of 2.5% from 1976 to 1979 (table 3.1). Government retail egg prices have seen a higher percentage jump (table 3.1).

3.2 Assessment of Marketing System for Poultry and Eggs

3.2.1 Transport Network and Flows of Poultry and Eggs

Domestic Production

Domestic production of poultry and eggs are not transported long distances in Syria with production units located near the larger urban consumption areas. For the large poultry project in Sednaiya, the government has one truck for transporting chickens to the poultry slaughter plant in Damascus. The truck has a capacity of 3,500 chickens and usually makes two trips per day carrying chickens.

In assessing the transportation system for poultry and eggs, no constraints seem present to limit the operational efficiency of the system. Transportation is available and usually provided by the wholesaler who distributes poultry meat and eggs to retail shops. Small Suzuki trucks are used mainly by wholesalers to distribute poultry meat and eggs in the urban areas.

Imports of Poultry and Eggs

Imports of frozen chickens by the Meat Bureau of G.C.I. for the years of 1976 to 1978 are listed in table 3.2. In 1978, 2,500 metric tons (m.t.) were imported at an average cost of \$1,128/m.t. cost plus freight (c&f). Import duty is 4% of the value. Frozen chickens are landed in Tartous or Latakia and then transported to Damascus in refrigerated trucks. Trucks are either from the Ministry of Supply or rented from private sectors. Transportation rates were quoted at S.L. .22/kg/km if trucks are able to backhaul on the return trip; otherwise, the price is double. Source of imports is the Baltic countries of Romania or Bulgaria as well as South America. The Meat Bureau also has on order 500 m.t. of frozen chicken from Bulgaria in 1979 which will be delivered by refrigerated trucks. No bottlenecks are seen present in the distribution system.

Table 3.1. Official Prices for Eggs, Broilers and Red Meat in Damascus, 1976 and 1979.

Item	Sept. 1976	March 1979	Percentage Increases 1976 - 1979
<u>Broilers</u>	S.L./kg	S.L./kg	%
Retail broilers, dressed	7.80	8.00	2.5
Retail broilers, live	-	5.50	-
Retail beef, red meat	10.50	16.00	52.3
Retail mutton, red meat	17.00	20.50	20.6
<u>Eggs</u>			
Retail 53 gr. or less (S.L./egg)	.20	.275 ^a	27.3
Retail 53-60 gr. (S.L./egg)	.23	.30 ^b	23.3
Retail 60 gr. and over (S.L./egg)	.25	.325 ^c	23.1

a. The March, 1979 price is for eggs less than 51 grams.

b. The March, 1979 price is for eggs between 51-57 grams.

c. The March, 1979 prices is for eggs 58 grams and over.

Table 3.2. Imports of Frozen Chicken by Meat Bureau, 1976-1978.

Year	Qtr.	Quantity m.t.	Value \$/m.t.	Import Duty \$/m.t.
1976	2	1,000	1,175	47
	2	600	1,250	50
1977	4	100	1,250	50
1978	1	500	1,170	47
	3	1,000	1,015	41
	4	1,000	1,220	49
1979	2	500	1,200	48

Source: Files of Meat Organization, April 1979.

3.2.2 Processing Facilities

Poultry Hatcheries

There are 5 to 6 private hatcheries in Damascus which distribute day old chicks. The government project at Sednaiya also distributes chicks but mainly to supply its own farms. If surplus occurs, the farm will sell day old chicks to private operations. Production cost of day old chicks at Sednaiya was estimated at S.L. 1.10 per chick. For the private sector, the full cost of production of day old broiler chicks from local parent stock was estimated at S.L. 1.35 assuming an 80% yield in hatched eggs. If hatching eggs are imported, then cost of production of a broiler chick was estimated to increase to S.L. 1.50 based on an 80% yield in eggs. The hatcheries distribute day old layer chicks which are imported. One hatchery, which imports day old layer chicks from Lebanon, pays S.L. 2.85 per chick cost plus transport to Damascus.

The net profit on each chick is estimated at 5% for imported day old layer chicks by a private hatchery in Damascus. Day old layer chicks retail for S.L. 3.00. For broiler chicks, net profit was estimated at 19% for broiler chicks produced from local parent stock. Net profit from day old broiler chicks from imported eggs drops to 6.7%.

Private hatcheries also mix poultry ration from ingredients purchased from General Organization of Feed (GOF). Mixed feed for broilers was sold for S.L. 1,250 per metric ton (m.t.), F.O.B. Damascus. The mixed feed is sold in 50 kg. bags. Premixed broiler feed bought from GOF costs S.L. 1,150/m.t. The government's price is slightly less than the costs of private hatcheries. Hatcheries are competitive and try to operate as efficiently as possible given constraints on supplies of feed and its quality which must be purchased from the government's GOF. Hatchery operators complained that quality of feed is not reliable which is one reason why private firms are able to sell their own mixed ration from government's input supplies. Private hatcheries are realizing a favorable return on investment of 19% in locally produced day old broiler chicks which is an encouragement for further expansion in the hatching industry. With the growth of the public sector to construct three large hatcheries by 1982, this margin of profit will be reduced. The private hatcheries also provide excellent marketing services to private customers. The hatchery has free delivery of day old chicks directly to a producer's farm being responsible for any mortalities in chicks while in transport.

Poultry Slaughter Plants

Most of the poultry slaughtered and dressed are done in private slaughter facilities. In Damascus, there are an estimated 15 private slaughter plants for poultry. Private merchants contract with broiler producers to purchase their broilers. These private merchants have their own transport and take delivery of the poultry at the producer's farm.

In table 3.3, the marketing margin for broiler meat is estimated from farm gate to wholesale. Cost of broiler production in Damascus mohofazat was estimated at S.L. 4.90/kg. Poultry producer realized a 33% return on his investment. Net return to private merchant who purchases, slaughters, and transports dressed carcass meat was estimated at 9.5% return on his investment. The value of the marketing margin between the farm gate and wholesale is 26% with 68% of the marketing margin being the cost of slaughter. The middlemen who slaughter and wholesale dressed poultry make a 10% rate of return which is not excessive. The middlemen play an important role in facilitating marketing processes efficiently and at a reasonable cost.

In the public sector, the government has a poultry slaughter plant in Damascus. The plant was designed to receive supplies from the large poultry farm at Sednaiya, and GOP is responsible for managing the plant. The poultry slaughter plant was constructed in 1973 but was not operational until 1976. The plant operates from 7 a.m. to 10 a.m. every day. The plant has the capacity to slaughter 1,000 chickens per hour. Poultry arrive in plastic cases holding 12 birds per case.

The poultry plant received 3,000-5,000 broilers per day during the months of March and April. There are 44 employees at the plant, 24 laborers and 20 routine workers in administration, with average monthly salaries of S.L. 600. Since supplies are dependent on the GOP's government farm, the plant capacity is not utilized. Marketing margins for poultry processes through the GOP plant is compared with the private slaughter houses in Damascus (table 3.3). The margin is higher in the processing plant with a 47% price differential between the farm price and the price of processed poultry with 68% of the margin being from the cost of slaughter. For an 8 hour shift, the plant is utilizing 38% of its available capacity. Unlike the private slaughter facilities in Damascus, GOP does not deliver dressed chickens to retail outlets.

A government administrator estimated average daily consumption in Damascus of 18,000 chickens. Consumption during the winter falls to 12,000-15,000 chickens per day and rises to 25,000 chickens per day during the summer. The majority of processed chickens are supplied by the private sector while the government maintains a plant which has a larger capacity but is underutilized. The GOP's plant could not compete with private processors for poultry from private farms because of their high slaughter costs. The plant would have to charge a wholesale price at the plant higher than the government's controlled retail price.

3.2.3 Marketing Facilities

Distribution and Wholesaling Facilities

(a) Poultry Marketing

The private sector has the major responsibility for delivery of live and dressed poultry. The facilities are low cost operations with a large number

Table 3.3 Marketing Margin for Dressed Poultry in Damascus, April, 1979

	Private Merchant		Government Slaughter Plant	
	Value	Percent	Value	Percent
	L.S./kg.- - - % - -		L.S./kg.- - - % - -	
Cost to Produce Broiler of 1,300 gr. liveweight	4.90		5.10	
Farm Price of Live Broiler weighing 1,300gr.	6.50		5.10	
Net Profit to Producer	1.60	33		
Slaughter Cost of live bird weighing 1,300 gr.	1.17		1.65	
Transportation to store	.30			
Wholesale cost/kg liveweight	7.97		6.75	
Average Wholesale Price per kg. dressed carcass	8.20		7.50	
Marketing margin of broiler meat	1.70	26	2.40	47
Sale of Offals	.53		.53	
Revenue from Sale of Chicken	8.73		8.03	
Net Margin of Profit to Wholesale Merchant	.76	9.5	1.28	19

of small firms involved in the trade. Restaurants are a major market for dressed poultry and require daily delivery of chickens. A dispersed marketing system could handle the necessary flows for major urban markets like Damascus and Aleppo. The distribution and wholesaling facilities can be described as efficient and low cost. The only drawback in the system is that sanitation conditions under which poultry are slaughtered and transported are lacking. One reason costs are low is that facilities are kept simple with low overheads.

(b) Egg Marketing Facilities

Many of the middlemen who wholesale and distribute dressed poultry also handle eggs. Average cost of production for eggs in Syria is estimated in table 3.4. The government has seven grades for eggs and given an average weight of 60 grams for an egg, average F.O.B. farm price was S.L. .249/egg. The wholesale takes delivery of eggs from the poultry farm. Based on the survey of poultry retail shops, the wholesale price of eggs in Damascus was S.L. .279/egg in March 1979. The wholesaler's margin on each egg is an average of S.L. .03/egg which is a gross margin of 10.7% of the wholesale price. The return to the wholesaler would be less when the cost of transportation and the overhead costs are paid for. The distribution and wholesaling of eggs seems efficient and competitive with a reasonable rate of return to the wholesaler. The middlemen are providing a useful and adequate service at reasonable costs.

Retail Shops for Poultry and Eggs

(a) Description of Poultry Retail Shops

Poultry retail shops were surveyed in Damascus and Aleppo. In Damascus, the five shops surveyed were distributed across income areas while in Aleppo only two shops were interviewed in the middle income area. Characteristics of the shops are detailed in table 3.5. Poultry shops operated on the average 12 hours per day, and most shops were open seven days per week. Many of the shops sold dressed or roasted chickens and customers were dropping-in to purchase food. Shops interviewed in both cities were small, efficiently run operations. Because of the turnover in inventory, many shops did not have freezers but did have refrigerated display cases so customers could choose their dressed chickens. As in the mutton and beef retail shops, shops are managed and owned by the same individual.

(b) Record of Sales

Operators were asked to estimate their average monthly sales of poultry products sold in the first and second quarter of each year (table 3.6). Average sales of dressed chicken were higher in the second quarter for Damascus shops. Consumption of poultry is reported to increase during the spring and summer months. Sales of dressed poultry were highest in the high income areas of Damascus. Because only two shops were interviewed in Aleppo, it is difficult to make general statements about the city. Average

Table 3.4. Marketing Margin for Eggs from Farm Gate to Wholesale in Damascus, March 1979.

	Value S.L./kg.
production cost	.215
F.O.B. farm price	
egg \leq 50 gr. weight	.216
egg = 60 gr. weight	.227
egg \geq 70 gr. weight	.305
Average F.O.B. farm price	.249
Average Wholesale Price ^a	.279
Marketing Margin	.03
Marketing Margin as % Wholesale price (%)	10.7

a. Average wholesale price determined from survey of poultry retail shops in Damascus.

Table 3.5. Characteristics of Private Poultry Shops in Damascus and Aleppo, March, 1979

	DAMASCUS				ALEPPO	
	Low Income	Middle Income	High Income	Total	Middle Income	Total
Shops surveyed (no.)	2	1	2	5	2	2
Size of shops (sq.ft.)	407	N.A.	360	385	169	169
Ave. time shops open(a.m.)	8:00	8:00	8:00	8:00	8:30	8:30
Ave. time shops close(p.m.)	8:00	10:00	6:30	8:00	8:00	8:00
Shops open everyday(%)	50	100	100	80	50	50
Ave. no of Employees/shop	1.5	2	3.5	2.3	3	3
Shops with fulltime employees (5)	100	100	100	100	50	50
Shops operated by relatives (%)	100	100	50	80	50	50
Owner of shop in society (%)	0	100	50	40	0	0
Shops with refrigeration	100	100	100	100	100	100
Shops with display case (%)	100	0	100	80	100	100
Shops with freezer	0	100	100	100	100	100
Shops with Operator/owner	100	100	100	100	100	100
Owner has other job	100	0	50	20	0	0
Operator owns other shop (%)	100	0	50	20	0	0
Cleanliness of store	good	good	fair ⁺	good	good	good

Table 3.6. Monthly Sales of Poultry and Eggs in Retail Shops in Damascus and Aleppo, March, 1979

Products	DAMASCUS						ALEPPO					
	Low Income		Middle Income		High Income		Middle Income		Total		Total	
	1st Qtr.	2nd Qtr.	1st Qtr.	2nd Qtr.	1st Qtr.	2nd Qtr.	1st Qtr.	2nd Qtr.	1st Qtr.	2nd Qtr.	1st Qtr.	2nd Qtr.
POULTRY	753	753	600	600	1,650	2,250	1,081	1,321	1,500	1,500	1,500	1,500
EGGS (doz.)	460	460	120	120	240	240	304	304	167	167	167	167
OFFALS (kg.)	80	80	24	24	-	-	37	37	-	-	-	-

sales of dressed poultry was 1,500 kg each month which is higher than the average sales for similar products of mutton and beef in retail shops in Damascus.

Each retail shop in Damascus reported selling eggs. Average monthly sales per shop were 304 dozen, higher than reported sales of one shop selling eggs in Aleppo. In several shops, owners reported buying their eggs and chickens from the same wholesaler. Only two shops reported selling offals in Damascus, and offals constituted a small percentage of monthly sales.

Daily sales of poultry were highest on Fridays in Damascus (table 3.7) corresponding to the weekly holiday when there would be more purchasers of roasted chicken. In Aleppo, shops reported significant increases in sales on Thursday and Saturday. Some increase was observed on Friday. Average daily sales per shop was 32 kg., the same for Damascus and Aleppo. Sales of poultry were reported to increase with the greatest increase occurring during the festival of Adaha in Damascus; sales were observed to increase most during the Rammadan festivities.

(c) Wholesale and Retail Prices for Poultry Products

Retail shops reported buying live and slaughtered poultry. There are poultry shops which sell live birds so the customer can choose his chicken. These shops were mostly located in the low income areas of Damascus. Dressed poultry were sold per kg. with the visceral and intestine being sold to different specialty retail shops. Wholesale and retail prices are subject to supply and demand conditions for a particular period. Wholesale and retail prices for live chickens for Damascus and Aleppo are listed in table marketing margin was slightly higher in Damascus for every year reported except 1970. The retail price for roasted chickens was approximately the same in both cities. Shops seem to be adhering to government controlled prices for this item. Retail prices for dressed poultry were approximately equal between the two cities. The marketing margin for Aleppo was higher in 1979 with a margin of S.L. .87/kg of dressed poultry sold.

Wholesale and retail prices for eggs for the year of 1970 and the period of 1974-1978 are listed in table 3.10. The marketing margin in 1978 was lower in Damascus which could be explained by the production farms, government and private, supplying the Damascus urban area. It is likely that in 1979, the marketing margin will be reduced in Aleppo with increased production from the new government farm in Zurbeh. The marketing margin reported by private poultry shops for eggs was S.L..24/dozen in Damascus which is S.L. .03/dozen higher than the reported price spread in 1978 (table 3.10). The gross margin on each egg is extremely low, S.L. .02, which is slightly above the government's official marketing margin of @L. .015/egg at retail. The price spread for Aleppo between wholesale and retail was S.L. .60 per dozen which was the same spread in 1978 which is a gross margin of 14%.

Table 3.7. Average Sales of Poultry per day and during Religious Festivities in Damascus and Aleppo, March, 1979

Sales/Day	DAMASCUS				ALEPPO	
	Low Income	Middle Income	High Income	Total	Middle	
					Income	Total
<u>Weekdays</u>						
Sunday	10	17	55	31	23	23
Monday	10	17	55	31	23	23
Tuesday	10	17	55	31	25	25
Wednesday	10	17	55	31	25	25
Thursday	10	17	55	35	50	50
Friday	10	45	55	35	30	30
Saturday	10	17	55	31	50	50
Ave. Daily Sales	10	21	55	32	32	32
<u>Festivities:</u>						
Ramadan	-	8	85	59	140	140
Adaha	-	48	115	93	65	65
Christmas	-	25	90	68	65	65
Easter	-	25	90	68	50	50
Sales/customer/wk.	-	-	3	3	N.A.	N.A.

Source: Personal Interview, March, 1979.

Table 3.8. Wholesale Prices Paid for Poultry Products by Meat Shops in Damascus and Aleppo (Spring 1979)

	DAMASCUS										ALEPPO							
	Low Income			Middle Income			High Income			Total Shops			Middle Income			Total Income		
	Live	Slau	Other	Live	Slau	Other	Live	Slau	Other	Live	Slau	Other	Live	Slau	Other	Live	Slau	Other
<u>Wholesale Prices Paid</u>																		
Poultry (S.L./kg.)	5.10	8.50	-	-	8.50	-	6.60	7.60	-	5.75	8.05	-	6.50	7.68	-	6.50	7.68	-
Eggs (S.L./doz.)	-	-	3.23	-	-	3.40	-	-	3.50	-	-	3.37	-	-	3.60	-	-	3.60
Offals (S.L./kg.)	-	-	11.00	-	-	10.00	-	-	-	-	-	10.50	-	-	-	-	-	-
<u>Retail Prices Received</u>																		
Poultry (S.L./kg.)	5.50	8.50	14.00 ^a	-	-	9.50 ^a	-	8.00	10.85 ^a	5.50	8.25	11.45 ^a	-	8.55	12.00	-	8.55	12.00 ^a
Eggs (S.L./doz.)	-	-	3.40	-	-	3.60	-	-	3.75	-	-	-	3.61	-	4.20	-	-	4.20
Offals (S.L./kg.)	-	-	12.00	-	-	11.00	-	-	-	-	-	-	11.50	-	-	-	-	-

^aSales price for roasted chicken

Table 3.9. Wholesale and Retail Prices and Marketing Margins for Live Poultry in Damascus and Aleppo for Selected Years.

Year	DAMASCUS			ALEPPO		
	Wholesale	Retail	Margin	Wholesale	Retail	Margin
	--(S.L./kg.)--					
1970	2.94	3.18	.24	2.78	3.16	.38
1974	6.02	6.55	.53	5.73	5.95	.26
1975	5.93	6.40	.47	5.60	5.95	.35
1976	6.00	6.65	.65	6.20	6.53	.33
1977	6.63	7.12	.49	6.70	7.10	.40
1978	-	-	-	-	-	-

Source: Central Bureau of Statistics, 1978.

Table 3.10. Wholesale and Retail Prices and Marketing Margins for Eggs in Damascus and Aleppo for Selected Years

Year	DAMASCUS			ALEPPO		
	Wholesale	Retail	Margin	Wholesale	Retail	Margin
1970	1.68	1.90	.22	1.68	1.90	.22
1974	2.99	3.26	.28	2.94	3.38	.44
1975	2.70	3.12	.42	2.78	3.18	.40
1976	3.00	3.50	.50	2.88	3.31	.43
1977	3.83	4.31	.48	3.50	4.00	.49
1978	3.37	3.58	.21	3.60	4.20	.60

Source: Central Bureau of Statistics, 1978.

(d) Performance of Retail Poultry Shops

Performance of poultry retail shops in Damascus and Aleppo is high. Shops have adequate supplies of products reporting high volume of sales with low overheads. The shops were owner operated and services seemed adequate. Examining the financial balance sheet for an average month of operation, average net profit on total sales was 23% in Damascus and 21% in Aleppo (table 3.11). Because retail shops are low overhead operations with no butchering of poultry, costs are kept to a minimum. Since there is little government intervention in the distribution and wholesale stage of the industry, wholesalers are competitive in providing low cost products. Because of the fluctuations in supply, it is likely that net profits will decline when there are surplus poultry products in the market.

3.2.4 Marketing Institutions

There are two institutions involved in the marketing of poultry products. The General Organization for Poultry (GOP) in the Ministry of Agriculture and the General Consumption Institute (GCI) in the Ministry of Supply. Both institutions are government agencies. The GOP is in control of the government poultry farms and the slaughter house in Damascus. The GOP has not developed a marketing system for their products. Emphasis of GOP has been on increasing production with little forethought given to how products could be best distributed. Given supplies of poultry and eggs from the private sector in Aleppo, the government's farm at Zurbah is likely to flood the Aleppo market. Prices for products will decline necessitating efforts by government to become aware of marketing strategies to remain competitive in the marketplace. By the end of 1979, Zurbah will reach 80% capacity, marketing 800,000 broilers and 36 million eggs annually. Officials at Zurbah, when asked how these products would be marketed, were not sure, only that plans would be developed. A slaughter plant in Aleppo, like the one in Damascus, is proposed.

G.C.I. markets poultry and eggs through their Meat Bureau and sells products in their meat shops and supermarkets. GCI has a total of 100 department stores in Syria with at least one department store in each city and two in each mohafazat. As described in table 3.2, G.C.I. imports frozen chickens which sell at a government controlled price which is less than the price of local poultry. G.C.I. buys from GOP farms to supply its requirements for chilled poultry and eggs. G.C.I. has cold storage facilities outside Damascus for keeping frozen imports to offset any shortages in the marketplace. Operating distribution, wholesale, and retail facilities, G.C.I. is actively involved in providing marketing functions. G.C.I. performance is rated higher in their marketing efficiency for poultry and eggs, probably because of the few services required.

In the private sector, each stage of the marketing system can be described as being a dispersed market except for the marketing of day old chicks. There are three large hatcheries in Syria that service the needs of the private sector. From all information gathered, they are conducting business

Table 3.11. Monthly Financial Balance Sheet for Poultry Retail Shops in Damascus and Aleppo, March, 1979

	DAMASCUS						ALEPPO					
	Low Income		Middle Income		High Income		Total Shops		Middle Income		Total Shops	
	Shops	Value S.L./mo.	Shops	Value S.L./mo.	Shops	Value S.L./mo.	Shops	Value S.L./mo.	Shops	Value S.L./mo.	Shops	Value S.L./mo.
Revenue from Sales:												
Poultry	2	8,471	1	5,700	2	15,551	5	10,464	2	14,550	2	14,550
Eggs	2	1,564	1	432	2	900	5	1,072	1	701	1	701
Offals	1	960	1	264	2	0	2	612	2	0	2	0
Monthly Revenue	2	10,515	1	6,396	2	16,451	5	11,781	2	14,901	2	14,901
Costs:												
Products	2	7,046	1	5,748	2	12,060	5	8,537	2	11,520	2	11,520
Overhead	2	294	1	115	2	599	5	380	2	282	2	282
Wages	2	0	1	0	1	680	5	136	2	0	2	0
Monthly Costs	2	7,340	1	5,863	2	12,999	5	9,053	2	11,802	2	11,802
Net Return/month	2	3,175	1	533	2	3,453	5	2,727	2	3,099	2	3,099

competitively. The government's plans to construct three new hatcheries in Syria and also serve private firms will narrow the profit margin for privately owned hatcheries.

3.2.5 Purchase and Credit Facilities

Because of the large number of private firms at all stages in the poultry industry, purchase and credit facilities are not viewed as a constraint on the operational efficiency of the marketing system. There seems to be easy entry into poultry marketing, except at hatchery level, to insure pricing efficiency at each level in the industry.

3.2.6 Market Information Systems

Very little market information is readily available to participants in the marketing system. If the government were to promote more market information services, decision-making by private individuals would be better. Since at each stage of the marketing system, there are many firms, efficient operation is dependent on easily accessible information on cost of inputs and product prices. Retail outlets must rely on word-of-mouth in determining the best price possible.

3.2.7 Grades and Standards

Compared to the livestock-meat industry, grades and standards for poultry eggs are utilized more in the marketing system. The government has seven grades for classification of eggs with the major determinant being weight of eggs. The government's official marketing margin of S.L. .025 per egg or 8% (retail S.L..015 plus wholesale S.L. .01/egg) is extremely low and provides no possibilities for services such as refrigeration, candling and further grading. In retail poultry shops, eggs were neither refrigerated, reducing their shelf life nor cleaned or packaged, increasing breakage.

3.2.8 Degree of Competition

The degree of competition is high in poultry and egg marketing, with easy entry into the market place. With government's increased expansion in the production of poultry and eggs, profit margins will narrow with probably smaller firms in the industry having difficulty surviving. In the Damascus market, there are 15 private merchants who slaughter and wholesale dressed poultry in addition to the GOP's wholesaling of poultry from the slaughter house. Competition is adequate to keep prices in line with supply and demand conditions of the market.

3.2.9 Degree of Coordination

There is some vertical coordination in the marketing system for poultry products. Some private merchants in Damascus who purchase and slaughter live broilers also have a retail outlet for their processed product. There is no evidence that broiler or egg producers have facilities to process

their product. The large hatcheries have expanded into mixing poultry feed from ingredients purchased from the General Organization for Feed (GOF), but they have not expanded into production of meat or eggs. Even the government has assigned two separate institutions, one to produce and the other to market poultry and eggs. An obvious lack of coordination has occurred preventing any increased efficiencies to occur through the marketing system.

3.3 Summary of Assessment

The marketing system for poultry and eggs seems to be performing well. The consumer has a variety of alternatives including direct home delivery of chickens and eggs by the producer. Many specialized chicken restaurants are available and fresh domestic or frozen imported birds can be purchased in private or government stores.

Poultry meat and eggs are priced well below red meats. The price differential between poultry, mutton and beef has increased since 1976 indicating that expansion in the poultry industry with appropriate technology has kept retail prices from rising. For the period of the next 5 year plan (1981-1985), the prospects are that beef and lamb prices will be at record highs throughout the Middle East. Much of the growth in animal protein will need to come in poultry production.

The official marketing margin for eggs is extremely low and provides no possibility for services such as refrigeration, candling and further grading. Little effort by wholesalers or retailers is made to market a clean, packaged product. Eggs are not refrigerated which lessens their shelf life.

Operational efficiency is present at each stage of the marketing system. At the retail level, average monthly net profit for stores in Damascus is S.L. 2,727 which is a 23% return on sales which is higher than what was estimated for private beef and mutton retail shops. If cost efficiencies are to occur in the future, then more coordination between stages in the marketing system will evolve. With government's GOP planning to increase hatchery capacity and general production of meat and eggs, it is likely that the inefficient operator will be squeezed out of business.

The government's poultry slaughter house is only partially utilizing its available capacity. The facility is clean and modern, but GOP is unable to purchase poultry from the private sector because their wholesale price would increase. Private slaughter facilities supply approximately 80% of the broiler meat consumed in Damascus daily. Alternative strategies should be researched to utilize more of the available capacity.

As an input to the poultry industry, feedstuffs have been the key to expansion. Private poultry producers complain, though, that the quality of feed input received from government's (GOF) is not always reliable. This is why some private feed mills sell their own premixed ration from ingredients purchased from the government.

3.4 Recommendations for Improvement of Marketing Systems for Poultry and Eggs

Additional government investment in poultry production capacity is not likely to be needed for the next 5 year plan if it is clear to the private sector that they will be allowed to make a reasonable return on investment. In the next 5 year plan more emphasis needs to be given to marketing and processing facilities.

3.4.1 Marketing Institutions

In the next 5 year plan, production of poultry meat and eggs will require marketing strategies to insure efficient distribution of products. If present policies are continued with government being a poultry producer and competitor in poultry and feed, there is a likelihood that the government poultry industry will lose money throughout much of the period. Because of a reluctance to raise prices to cover costs, it may cause losses among private firms who must make a profit to survive. Any future government production farms should conduct a market survey study to determine how products will reach consumers at lowest cost. In a project the size of Zurbeh, production will likely cause surplusses in Aleppo which will require marketing studies on distribution of products to other deficit regions. No marketing contingency studies have been undertaken. GOP should emphasize development of its existing marketing department to design marketing alternatives for government production.

The government's GOP has not developed linkages with the private sector because of organizational difficulties. At Sednaiya, government personnel said that private individuals were willing to purchase supplies of broilers and day old chicks from the farm but the farm found it more difficult to coordinate these sales, preferring to supply government's institutions only. More coordination between GOP and the private sector could be developed in the next 5 year plan.

3.4.2 Government Pricing Policies

It is recommended that price controls on poultry meat and eggs be removed. There are a large number of competitors with relatively free entry and expansion. With government as the largest single producer and a large number of relatively small competitors this should be adequate protection for consumers. Additional protection for consumers can easily be maintained by keeping import restrictions low.

3.4.3 Poultry Processing Facilities

GOP's slaughter house in Damascus is using only a portion of its available capacity. The plant is slaughtering only 20% of the city's daily consumption. Efforts should be made to encourage use of the plant by the private sector. Cooperative or partnership agreements could be

designed between GOP and private operators to slaughter in the GOP's slaughter house in Damascus. If the government is unable to increase their utilization of the plant's available capacity, the government could lease the facility to private firms on a sealed bid basis for five year periods and allow the plant to be operated by the private sector.

There is a processing facility for making feed ration from the discarded parts of the chicken. With greater utilization of the poultry plant capacity, there would be more feed ration available. The discarded parts of chicken in the private sector have no way to be economically utilized. The feather processing plant needs to be made operational again. If these processing facilities from the chicken's by-products are not economical for the government, then plans to lease them to the private sector should be encouraged.

4. ASSESSMENT AND RECOMMENDATIONS FOR DAIRY MARKETING

4.1 Description of Industry

The majority of the milk produced and marketed is controlled by the private sector. Only 2.6% of cows' milk produced in 1977 was from state farms (Census Bureau of Statistics, 1978). From 1973 to 1977 the rate of increase in production of cows' milk has averaged 17.1% annually (table 4.1). From 1976 to 1977, milk production increased by approximately 9.0%. Production of sheep's milk reached an all time high of 285,000 m.t. in 1976 but declined in 1977 by 16%. Production of sheeps' milk is going to be highly dependent on forage conditions in a particular year.

Consumption of processed milk also reached an all time high in 1976 but fell off in 1977 by 2.7%. Only fresh milk consumption has increased each year from 1973 to 1977. The value of milk and milk products in constant 1963 prices had a noticeable increase in 1976 but declined slightly in 1977.

Milk production in Syria has been assisted by the UNICEF in established dairy plants which process local milk with imported milk powders into bottled sterilized milk. The Syrian government with assistance from World Food Program operates three dairy plants in Damascus, Homs, and Aleppo. The dairy plants do not handle sheep's milk which is processes mainly into yoghurt cheese, or ghee. All processing of sheep's milk is by manual methods.

In an overview of prices for milk and dairy products, regional prices for the center of each Mohafazat are given in table 4.2. Marketing margins for dairy products were relatively low. Many sales are direct from farmer to consumer. Retail prices and wholesale to retail marketing margins varied among Mohafazats and for the same Mohafazat over time (table 4.2). Examination of these data suggest a very market-oriented industry. These data have the same variability over geographic areas and over time that one would expect for a market system without price controls. Marketing margins are lowest on milk and fresh yoghurt and highest on cheese. The variability in

Table 4.1. Value and Production of Milk and Dairy Products in Syria, 1971-1977^a

Year	Milk Production				Milk Products Produced				Value of Milk and products at constant 1963 prices (million S.L.)
	Goats	Sheep	Cows	Butter	Cheese (m.t.)	Chee	fresh milk (1000 m.t.)	Milk	
1971	53	188	199	2,045	27,758	5,530	157	441	201.5
1972	48	223	187	1,353	26,640	7,836	141	458	177.8
1973	40	173	179	1,092	24,084	2,166	134	394	177.5
1974	52	235	212	1,269	25,832	7,993	176	500	167.7
1975	53	250	263	1,283	29,862	8,911	200	567	172.7
1976	72	285	307	1,083	34,550	9,180	245	665	194.7
1977	71	240	335	839	30,160	7,586	253	647	187.9

Source: Central Bureau of Statistics, 1978.

Table 4.2 Prices and Price Spreads for Dairy Products by Mohafazat, Animal Average, 1977

Mohafazat	Retail Piasters/kg.	Wholesale		Retail Piasters/kg.	Wholesale		Retail Piasters/kg.	Wholesale	
		difference (%)	Retail difference		difference (%)	Retail difference		difference (%)	Retail difference
Damascus	130	11.5		145		8.3	700		15.7
Aleppo	132	9.1		165		18.2	750		13.3
Homs	112	8.9		133		15.0	614		10.4
Hama	112	11.6		133		6.0	644		6.8
Tortous	106	12.3		115		8.7	634		9.3
Lattikia	100	5.0		120		12.5	693		12.2
Idleb	121	10.7		160		12.5	642		10.7
Al Rakka	108	5.5		158		16.5	645		15.5
Deir-es-Zor	96	8.3		123		8.1	692		27.7
Al Hasakeh	125	-		134		7.5	622		5
Sweida	120	4.2		125		8.0	625		4.3
Dara	116	5.2		123		8.9	638		11.8
									11

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Prices and Price Spreads for Damascus by years.

Year									
1977	130	11.5		145		8.3	700		15.7
1976	120	16.7		142		12.0	665		22.6
1975	100	10.0		125		8.0	663		32.1
1974	95	10.5		110		10.9	477		8.2
1973	83	14.5		96		9.4	417		8.1
1972	69	-		91		-	374		-
1971	68	-		84		-	379		-
1970	59	-		72		-	305		-

Source: CS - 1978

wholesale/retail price spreads over time is an example of the response to supply and demand conditions of a competitive marketing system.

A thorough study of the feasibility for increased dairy production was conducted by the German Agency for Technical Cooperation, LTD in 1978. Syria was estimated to remain a deficit milk production country at least until 1988 even with an infusion of 10,000 imported heifers. Total milk production was estimated to be 777 and 900 thousand tons until 1983 and 1988, respectively, given natural growth rates. The study estimated that Syria would have to import 504 thousand tons in 1983 and 855 thousand tons of milk products in 1988 to satisfy domestic consumption requirements. The study does indicate that local production will be increasing constantly which will place increased pressure on the current marketing system and processing facilities (German Agency for Technical Cooperation, p. 86).

4.2 Assessment of Marketing System for Dairy Products

4.2.1 Transportation Network and Flows of Milk and Dairy Products

Domestic Production

The marketing system for domestic production of sheep's milk is in the form of yoghurt, ghee, or cheese. Private merchants purchase directly from producers and supply the urban areas. The marketing system in dairy products from sheep's milk has developed over many years with the relationship between private merchants and bedouins on the Steppe. Dairy products from the Steppe are still marketed in this manner. If the bedouin is living within one day's travel to an urban areas, he will sell milk or yoghurt. If the herder lives a distance of 2 to 3 days travel time from an urban area, he likely will market cheese. If over three days, the herder will prepare and sell ghee. The system would be different if the private merchant picks up dairy products with a vehicle.

In the Damascus market area, private merchants operate as middlemen visiting private dairy farms twice per day to collect producers' milk. These middlemen transport the milk to town to sell to merchants who make yoghurt or sell fresh milk. It was estimated by a government official that the Damascus dairy plant receives only 20% of the area's milk production. A major barrier to increasing the plant's market share is lack of proper container vehicles to pick-up producers' milk. Because many producers are small operators, the plant would not find it economical to visit each producer. The lack of on-farm storage coolers or central collection centers is an obvious barrier preventing competitiveness by the dairy plant. The same problems are affecting the dairy plant in Aleppo in its being able to compete with the private sector for supplies of fresh milk.

Imports of Dairy Products

The trade balance of Syria in dairy products has been negative and steadily increasing each year since 1971 (table 4.3). In 1977, the negative

Table 4.3. Imports and Balance of Trade of Dairy Products in Syria, 1970-1977.

Year	Value of Imports ^a ('000 S.L.)	Imports as Percentage of Domestic Production %	Trade Balance ^a ('000 S.L.)
1970	24,821	1.8	-22,151
1971	54,366	3.4	-53,569
1972	56,175	3.4	-54,185
1973	76,817	4.4	-75,823
1974	94,602	3.2	-93,665
1975	103,878	2.0	-102,292
1976	180,746	3.2	-178,861
1977	207,936	4.3	-206,124

a. Trade statistics included egg imports in the total.

trade balance was S.L. 206 million. After cereals and cereal preparations, dairy imports had the largest negative trade balance of any other food commodity imported. Imports of dairy products were only 4.3% of total domestic production in 1978. The reason for the high value of imports is that these are processed dairy products, butter and cheese.

The Syrian Arab Dairy Company imports powdered skim and whole milk for their three processing plants. This company is supposed to be the only importer of powdered milk. In 1978 the Syrian Arab Dairy company received 2,700 m.t. of powdered skim milk, of which 1,200 m.t. was for the Damascus plant. The Damascus dairy plant also purchased 1,000 m.t. of whole powdered milk. The powdered skim milk shipments were from the United Nations World Food Program, while the powdered whole milk was bought on the commercial market. In 1978, 200 m.t. of butter were imported for processing ghee in the dairy plants in Damascus and Homs.

4.4.2 Processing Facilities

The only processing facilities are operated by the government owned Syrian Arab Dairy Company. Construction on the plants began in 1963 and operation began in 1970. Each plant has the capacity to process 30 tons daily of fresh milk into sterilized milk. Currently the Damascus plant is receiving 18-22 tons per day. The plant receives 66% of its fresh milk from government or cooperative dairy farms in the Damascus area. About 34% comes from the private sector. The plant manager estimated that they receive only 20% of the total production in the area.

In Aleppo, the dairy plant is utilizing even less of its available capacity. Daily supplies of fresh milk were reported at 7.5 tons with close to 50% being received from the government farm at Zurbeh. The plant was reported to have a net loss in 1978 of S.L. 300,000. The difficulty the plant had was purchasing supplies of fresh milk from the private sector at prices which were within the guidelines set by the government.

In evaluating the performance of the Damascus dairy plant, financial balance sheets for 1977 and 1978 were developed (table 4.4). The Damascus dairy plant had increases in profit from S.L. 2.60 million in 1977 to S.L. 2.72 million in 1978, an increase of 4.4%. The major reason for the increase in profits was the sales of ghee and butter. Sales of yoghurt and white cheese showed a decline because of poor consumer acceptance of these products reported by plant management. The plant is currently undertaking research with the University of Damascus to try and improve the taste of their white cheese. A profit rate of 12.2% in 1978 is very high for this type of plant, especially when the plant management complains that wages are extremely low causing excessive turnovers in employment.

Table 4.4. Financial Analyses of Dairy Plants in Damascus, 1977 and 1978

	1977		1978		% Increase in Value 1977/78
	Qty.	Value	Qty.	Value	
	(tons)	(S.L. '000)	(tons)	S.L. '000)	
Sales:					
Sterilized milk	2,470	2,964	2,580	3,250	9.7
Yogurt	6,050	5,445	5,317	4,998	-9.9
Concentrated dry Yogurt	450	1,620	421	1,680	3.7
White cheese	350	1,260	228	1,095	-13.1
Butter oil (ghee)	800	5,800	908	7,143	23.2
Butter	155	976	590	4,108	20.9
Total Revenue ^a		17,356		22,274	28.3
Costs:					
Raw materials		12,061		16,229	34.5
Auxillary materials		81		90	11.1
Packing materials		432		619	43.2
Energy and fuel		217		338	55.7
Other (interest, ins.)		568		446	-21.5
Sub-total		13,315		17,722	33.0
Salaries and wages		1,100		1,353	23.0
Depreciation		345		488	41.5
Total Costs		14,760		19,563	32.5
Net Profit		2,596		2,711	4.4
Profit on Sales (%)		15.0		12.2	-18.7
Gross Margin (%) ^b		23.3		20.4	-12.5

^aValue of product at the plant.

^bCalculated as sales minus cost of raw materials.

The plant manager complained that transport vehicles used to distribute products in the city were old and needed replacement; yet, much of the profits which the plant realized in 1978 were not funded back into the plant's operation. The management reported spending up to S.L. 200,000 on vehicle maintenance in 1978, and there have not been any replacements. The majority of the plant's profits are being used for dairy production.

4.2.3 Marketing Facilities

In assessing marketing facilities, neither the private nor public sectors have adequate facilities for collecting, distributing, wholesaling and retailing dairy products. In the private sector, there are many middlemen who handle a small volume of products. There is little modern technology present, tailored to the needs of the small operator. Simple, low cost technology has not been available for collecting and cooling milk. The dairy plant complains that acidity levels sometimes exceed 17% in milk, especially during the summer months, lowering the quality of their dairy products.

Distribution of dairy products from the dairy plants has created barriers in competing with the private sector. In Damascus, vehicles are not reliable and the delivery system has been slow. At the Aleppo plant, the plant was unable to service their customers adequately. Retail store owners had to arrange for their own delivery system and still sell at government controlled prices. With a competitive private sector, the dairy plant has difficulty providing a quality product with marketing services. Private merchants are willing to provide services to assure contract deliveries from dairy producers.

4.2.4 Marketing Institutions

One difficulty occurring in the dairy marketing system is the lack of coordination between the two institutions involved with the industry. The Ministry of Agriculture is responsible for production while dairy delivery systems and processing are under the Ministry of Industry. The General Organization for Food Industries (GOFI) in the Ministry of Industry supervises processing and marketing. GOFI is responsible for 17 other food processing sub-industries. As it was reported that net profits were not being reinvested in dairy plants operations, profits are likely being used in other areas, like dairy production. Very few changes in the marketing system have occurred in the public sector which has left the plants at a disadvantage in competing with private merchants for supplies of fresh milk.

4.2.5 Purchasing and Credit Facilities

It has been reported that private merchants who purchase the fresh milk from producers provide credit facilities. This service allows middlemen to develop contracts with groups of buyers making it difficult for the dairy plant to purchase supplies from the private sector. The dairy plants must rely on the government or cooperative dairy farms for their supplies. It was not determined whether the credit arrangement by middlemen was exploiting

the small dairy producer. It would be healthy to allow producers other alternatives for credit through government loans.

4.2.6 Market Information Systems

There are very few market information services available for dairy producers, especially since much of the dairy transactions are done on the producer's farm. Private producers are generally small volume operators, at a disadvantage in the marketing system as individual sellers. Improvement in market news services could help in the bargaining position of producers. Organized collection centers for producers with small volume could allow an alternative marketing system.

4.2.7 Grades and Standards

Few grades and standards are followed in the private sector. It was reported that because of improper cooling facilities, the dairy plant was receiving milk with too high an acidity level. If the dairy plants were to become a major purchaser in the private sector they would have to design standards for butter fat content and level of acidity. The use of collection centers for fresh milk could help administer appropriate grades and standards.

4.2.8 Degree of Competition

The dairy marketing system is highly competitive in the private sector. The degree of competition places government plants at a disadvantage in being unable to compete for supplies either in prices or services rendered. In 1977, the price spread for fresh milk in Damascus between the wholesale and retail levels was 11.5% (table 4.2). This does not seem to be an excessive margin implying margin competition in the markets keeping prices in line with costs.

4.2.9 Degree of Coordination

Coordination in the marketing system is observed between the private merchants and bedouin herders in arranging supplies of dairy products for sale in urban markets. The dairy plant being the sole purchaser of milk produced on government dairy farms is another marketing system linking production directly to processing. The output of milk from the government dairy farms is a small fraction of national production, less than 10%. The coordination in purchasing arrangements by private merchants with individual milk producers has been effective in developing contracts for milk supplies over a time period. If the government processing plants are to capture a larger market share, their efforts to provide additional services and coordinate delivery with medium to long run supply contracts will be necessary.

4.3 Summary of Assessment

Dairy marketing in Syria is chiefly in the hands of the private sector. Cheese, yoghurt and ghee are the major dairy products with the majority manufactured manually. The government does operate three dairy processing plants managed by the Syrian Arab Dairy Company. The dairy plant has been unable to compete effectively to obtain supplies of fresh milk from the private sector. The Damascus dairy plant receives only 20% of the milk produced in the Mohafaza of Damascus.

The distribution system for dairy products is grossly lacking. The majority of fresh milk is collected in small containers on the farm with little use of bulk carriers. On-farm cooling systems are not available requiring daily visits, sometimes twice per day, to an individual farm. This system could be made more efficient and quality probably improved.

Government dairy plants are using vehicles which have been operating since 1963. Vehicle maintenance costs are exorbitant causing delays in delivery and low marketing performance. Profits from the plant's operation have not been reinvested in the plant for new machinery and equipment. The processing plants experienced difficulty in daily delivery of sterilized milk to central distribution stores causing bottlenecks in the marketing system. Empty bottles must be returned by the plant's trucks so they can be reused for sterilized milk. Even the level of technical skills in the dairy plants are low because salaries have not been increased. There is a high turnover in employment even though the plant made a large net profit in 1978.

Little effort has been made to modernize the dairy marketing system. Emphasis has been placed on production. The dairy plants have sufficient plant capacity that is not being used. Orderly marketing of milk and dairy products should be a major concern of the next five year plan. Requirements can be met with appropriate technology and management at low cost to the industry.

4.4 Recommendations for Improvement of Marketing System for Dairy Products

4.4.1 Marketing Facilities

Collection Centers and Cooling Facilities for Fresh Milk

Because many of the private producers are small operators, a system of centrally located collection centers for fresh milk would be a method for reducing the number of visits to individual farms. Both in the Damascus and Aleppo plants, management complained of difficulty competing for supplies of fresh milk. The plant did not have the facilities to make regular visits to each producer. Collection centers would be able

to grade the milk paying premium prices for quality milk while keeping milk cool until pick-up by the plant. Payment could be made at time of delivery. Even low cost technology is available for an on-farm cooling of milk until pick-up by the plant. This would enhance the bargaining position of dairy producers. Currently the marketing system does not seem to be operating at least cost.

4.4.2 Processing Facilities

Damascus Dairy Plant

With large profits realized in 1978 by the plant, reinvestment in the operation would be advised in upgrading their vehicles. With over S.L. 200,000 spent annually in vehicle servicing, high costs of maintenance could be reduced. Motor vehicles for delivery of milk are recommended for service of distribution centers in the city. The plant has only four trucks, and not all are operating at one time.

Improvement in product design and quality is necessary in making yoghurt and white cheese. The plant recently designed new containers for merchandising their yoghurt, which is smaller than their 5 kg. bucket. Continued research is suggested in design, processing and packaging of white cheese which had a decline of 13% in value of sales from 1977 to 1978. To improve their marketability of milk products, the plant could design milk dispensers for sale of milk to schools and other institutions. Improvement in marketing strategies is necessary if the plant is to compete with the private sector.

Aleppo Dairy Plant

Many of the same difficulties faced by the Damascus plant are experienced in the Aleppo plant. Market penetration by the plant has been more difficult because of the highly competitive private sector. In the Aleppo market, there are supplies of sheeps's milk which customers prefer in making yoghurt. It is recommended that market research be conducted in product design to determine how the plant can present a more acceptable product. Selling yoghurt in smaller and easy-to-handle containers should also be introduced at the Aleppo plant. Improvement in the plant's distribution system needs modernizing just as in Damascus.

5. APPENDIX: DESIGN OF SURVEY FOR RETAIL MEAT SHOPS

With assistance from the Meat Bureau in the General Consumption Institute, a list of butchers being supplied mutton from the slaughter house was provided for Damascus. The names of six mutton butchers and three alternates were randomly selected from the lists of butchers in low, middle and high income areas. A letter of introduction was prepared by the managing director of G.C.O. informing the butchers of the visit by a survey team. Poultry and retail shops were also selected randomly by stopping at a

shop that was located in the vicinity of a mutton retailer. Two poultry and beef retail shops ere selected for each income area.

Interviews were conducted at each retail shop. The researcher was accompanied only by an interpreter and no representative was present from either the Meat Bureau or Butchers Association. It was found that presence of a government representative made respondents extremely suspicious.

In Aleppo, retail shops were selected at random by driving in different income areas. Because the retail of meat is uncontrolled, unlike Damascus, butchers were reluctant in several instances to be interviewed. Only where personal acquaintance between interpreter and butchers occurred was suspicion minimized. Fewer butcher shops were surveyed in Aleppo because of the difficulty with cooperation from butchers.

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Syria: Agricultural Sector Assessment

Volume 4: Agricultural Marketing Annex

CHAPTER IV

AGRICULTURAL CREDIT

By

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4.1 THE AGRICULTURAL COOPERATIVE BANK

The Agricultural Cooperative Bank (ACB) is the oldest lending agency in the Syrian Republic, having been established in 1884. It is owned and operated by the government as an agency for supplying the credit needs of Syrian agriculture. It operates through a system of 59 branches scattered throughout the Republic, with representation in every Mohafazat and in a number of Mantikas.

During the period from 1970 to 1978, total loans made by the ACB increased 112 percent, their number of employees increased by 35 percent, and the bank's capital and surplus increased by 74 percent. (see Table 4.1).

On the surface, these increases appear to be substantial. However, they fall way behind the nearly six-fold increase in total bank credit distributed to the Syrian economy and the more than 1500 percent increase in bank loans to the industrial sector during the 1970-77 period. Whereas in 1970 the ACB accounted for 15.0 percent of the credits from the Central Bank to the specialized banks, by 1977 this figure had decreased to 4.6 percent. (see Table 4.2).

4.1.1 The Distribution of ACB Loans

Loans made by the ACB may be analyzed according to a large number of classifications. We will use the following: (1) sector of borrower--whether public, cooperative or private; (2) term of loan--whether short, medium or long term; (3) enterprise financed, by major crop; (4) type of input being financed, such as fertilizer, machinery etc., and (5) geographic area, by Mohafazat.

4.1.1.1 Comparison of Loans by Sector

The volume and percentage distribution of loans made by the ACB among the private, cooperative and public sector for the period 1970-1978 are shown in Table 4.3. The total volume of loans made to all sectors in 1978 was more than double the 1970 figure. However, the relative importance of debt financing to the different sectors underwent a sizable shift during the period. In 1970, the private sector accounted for 72.2 percent of the ACB's credit allocation, with the cooperative and public sectors receiving 25.0 percent and 2.8 percent respectively. By 1978, the percentage of ACB loans received by the private sector had declined to 52.6 percent while the public sector was up very slightly and the cooperative sector increased to 44.2 percent. Just the year before (1977) these sectors were operating 76.0 percent, 1.2 percent and 22.8 percent of the cultivated land respectively.

There are a number of criteria on which the High Committee for Agriculture determines policies and rules by which credit is allocated among these three sectors. However, if increasing total agricultural output is an important goal, an assessment of the relative productivity

Table 4.1. Total Loans, Number of Employees, and Capital and Surplus,
The Agricultural Cooperative Bank (1970-1978).

Year	Total Loans made (Millions S.P.)	Number of Employees	Capital and Surplus (Million S.P.)
1970	159,580	789	68,490
1971	184,307	792	73,221
1972	156,807	776	75,620
1973	185,324	877	78,309
1974	172,922	814	87,768
1975	261,978	1075	90,293
1976	274,061	1058	104,128
1977	296,795	1022	108,578
1978	337,703	1063	112,000
1978/1970	2.12	1.35	1.74

Source: Published Annual Reports and data furnished by The Agricultural Cooperative Bank.

Table 4. 2. Credits from the Central Bank of Syria to Specialized Banks, 1970-77.

Year	Credits to Agric. Coop. Bank	Credits to all Specialized Banks	Agric. Coop. Bank as % of all Specialized Banks
(Millions of SP)			
1970	209.9	1391.4	15.0
1971	234.0	1535.5	15.2
1972	236.0	1925.4	12.3
1973	285.0	2394.0	11.9
1974	266.8	3720.4	7.2
1975	328.5	5508.2	6.0
1976	448.1	7949.1	5.8
1977	440.0	9486.5	4.6
1977/1970	2.11	6.82	0.31

Source: Quarterly Bulletins, the Central Bank of Syria.

Table 4. 3. Loans made by the Agricultural Cooperative Bank by Sectors (in Thousands of SP).

Year	Total	Public Sector		Cooperative Sector		Private Sector	
		Volume	Percent	Volume	Percent	Volume	Percent
1970	162032.0	4517.4	2.8	40528.2	25.0	116987.0	72.2
1971	187224.6	8742.8	4.7	53692.7	28.7	124789.1	66.6
1972	157823.5	11414.9	7.2	44492.3	28.2	101916.2	64.6
1973	185460.1	5701.6	3.1	49522.8	26.7	130235.7	70.2
1974	173772.1	4868.2	2.8	48243.6	27.8	120660.3	69.4
1975	259077.6	5738.1	2.2	83080.0	32.1	170259.5	65.7
1976	275022.5	6878.9	2.5	103068.1	37.5	165075.5	60.0
1977	296794.8	12392.4	4.2	127837.7	43.1	156564.7	52.7
1978	337702.6	10781.6	3.2	149142.9	44.2	177778.1	52.6
1978/ 1970	2.08	2.39		3.68		1.52	

of these sectors would be helpful to the High Committee in determining whether or not the ACB's present credit allocation among the three sectors is aiding to achieve this objective. In the absence of such an assessment, it appears to this team, based on obviously limited personal observations, that policies designed to increase future ACB credit allocation to portions of the private sector would significantly increase total agricultural productivity. (We will return later to a discussion of the rules by which credit is allocated among individual farmers within these sectors.)

4.1.1.2 Comparison of ACB Loans by Loan Maturity

ABC loans are of two types--cash and "in-kind." "In-kind" loans cover the financing of fertilizers, some chemicals, some seeds and containers such as bags, etc. Maturities for "in-kind" loans are of less than one-year's duration. The inputs are actually acquired by the ACB and distributed to farmers. Additionally, short-term cash loans are advanced to cover the purchase of other production inputs.

The bank makes three classes of loans according to loan maturity. Short-term loans (both cash and in-kind) have maturities of less than one year. Medium or intermediate-term loans have maturities ranging from one-year up to five years. Medium-term loans are normally used to finance such inputs as machinery and breeding livestock. Long-term loans have maturities ranging from five years up to but not exceeding ten years. These loans are used to finance land improvement and irrigation development, the development of trees and orchards, and selected building construction. Land purchase is listed as an allowed purpose for a long-term loan. However, almost no funds are allocated for land purchase under the reasoning that such loans merely transfer land title from one party to another and do not increase productive capacity.

Loans made by the ACB classified by loan maturity are shown in Table 4.4. The following trends appear noteworthy from these data:

1. A rather sharp and consistent relative decline in short-term cash loans, from 61.1 percent in 1970 to 27.2 percent in 1978;
2. A somewhat erratic annual allocation of in-kind short-term loans--likely due to variations in weather and other factors associated with growing conditions;
3. A significant relative increase in medium-term loans, from 5.9 percent of all loans in 1970 to 30.7 percent in 1978;
4. The relative insignificance of long-term loans in most years, with the volume increasing somewhat during the last two years. A rather severe cut back in long-term loans is planned for 1979 from the 1978 level, however, putting this figure more in line with the recent very gradual upward trend.

Table 4. 4. Loans made by the Agricultural Cooperative Bank by Loan Maturity 1970 - 1978. (Thousands of SL and percent).

Year	Long-term loans		Medium-term loans		Short-term loans						Total loans
	Volume	Percent of total	Volume	Percent of total	In-kind		Cash		Total short-term		
					Volume	Percent of total	Volume	Percent of total	Volume	Percent of total	
1970	397	0.3	9435	5.9	52152	32.7	97596	61.1	149748	93.8	159580
1971	2857	1.6	14924	8.1	67308	36.5	99218	53.8	166516	90.3	184307
1972	986	0.6	15199	9.7	52104	33.2	88518	56.5	140622	89.7	156807
1973	1580	0.9	15975	8.6	84347	45.5	83422	45.0	167769	90.5	185324
1974	1783	1.0	34336	19.9	61672	35.6	75131	43.5	136803	79.1	172922
1975	1276	0.5	78100	29.8	104296	39.8	78306	29.9	182602	69.7	261978
1976	1568	0.6	94170	34.3	87845	32.1	90478	33.0	178322	65.1	274061
1977	3819	1.3	71977	24.3	122689	41.3	98309	33.1	220998	74.4	296794
1978	10561	3.1	103707	30.7			91672	27.2	223435	66.2	337703
1979*	4300	1.1	136000	35.7	131763	39.0			241000	63.2	381300
1978/ 1970	26.6		11.0		2.5		0.94		1.5		2.1

4.1.1.3 Comparison of ACB Loans by Mohafazat

Loans made by the ACB during 1978 are compared on a mohafazat basis showing the breakdown between the private, cooperative and public sectors in Table 4.5, and between short-term, medium-term and long-term loans in Table 4.6. As expected, the large, important agricultural areas are also the areas in which the ACB makes the most loans. The five top-ranking mohafazats in terms of total loans were, in order: Al-Hassaka, Aleppo, Deir-Ezzor, Hama and Damascus. This order is modified only slightly when ranked in terms of short-term loans, with Al-Hassaka first, followed by Deir-Ezzor, Aleppo, Hama and Al-Raqa. When ranked in terms of medium-term loans, however, a somewhat different group of mohafazats move to the top, namely; Damascus, Tartous, Aleppo, Hama and Al-Swedida. The five ranking mohafazats in terms of long-term loans were: Al-Hassaka, Tartous, Homs, Aleppo and Al-Sweida. Three mohafazats (Hama, Al-Raqa and Al-Qunietra) made no long-term loans in 1978.

The top ranking mohafazats for private loans was very similar to that for all loans, with the exception that Idleb replaced Damascus in 5th place. In terms of loans made to cooperatives, however, the ranking shifted, as follows: Al-Hassaka is again in first place followed by Tartous, Deir-Ezzor, Damascus and Aleppo. The top ranking mohafazat for loans to the public sector was Homs, followed by Deir-Ezzor, Al-Raqa, Hama and Aleppo. Five mohafazats made no loans to the public sector in 1978.

4.1.1.4 Comparison of ACB Loans by Commodity Financed

As shown in Table 4.7, financing crops utilized 86 percent of total ACB funding in 1972, with only 14 percent going to all other enterprises and activities, including machinery purchases. By 1978, the percent utilized by crop financing had decreased to 58 percent. Machinery financing, meanwhile, increased from 1.3 percent to 17.6 percent. The percent allocated to livestock fluctuated materially from year to year due, primarily, to weather. However, bank funding of livestock was lower in 1978 than in 1972--not only relatively, but in terms of current lira, as well. Similarly, funds loaned for feed purchases appear, from available data, to be somewhat erratic from year to year, reflecting the impact of fluctuating weather patterns and, possibly, omissions in the record. The relative changes in ACB loans for selected crops is shown in Table 4.8 using 1972 as a base.

Among all crops, cotton production has been the heavy user of ACB loan funds. However, the percentage of ACB loan funds allocated to cotton decreased from 66.6 percent in 1972 to 29.0 percent in 1978. Despite an overt program within the MAAR to increase sugar beet production, the percentage of ACB loan funds allocated to sugar beets remaining surprisingly constant during this period.

The analysis of Table 4.9 might be helpful in bringing the issue of crop financing into sharper focus. In 1972 cotton accounted for

Table 4. 5. Loans From Each Mohafazat of The Agricultural Cooperative Bank by Sectors during 1978.

Mohafazat	Private	Cooperative	Public	Total
	SP	SP	SP	SP
Idleb	12177951	8050415	89157	20317523
Al Hassaka	43979307	22298497	214338	66492142
Aleppo	33087684	13148136	965878	47201698
Hama	17775828	15176738	1126777	34079343
Homs	4145272	10703863	2853537	17702672
Dar'a	5146474	3087402	--	8233870
Damascus	11483349	18768760	861806	31113910
Deir-es-Zor	16484046	21042382	2693194	40219622
Al Raqa	18766943	3338878	1976920	24082841
Al Sweida	5490930	5228123	--	10719053
Tortous	4270337	21256130	--	25526367
Lattakia	4793350	6947625	--	11740975
Al Qunietra	176596	95940	--	272036
Totals	177778066	149142889	10781607	337702562

Source: Annual Reports of The Agricultural Bank.

Table 4. 6. Loans From Each Mohafazat of the Agricultural Cooperative Bank to All Sectors during 1978.

Mohafazat	Short term	Medium term	Long term	Total
	SP	SP	SP	SP
Idleb	11327754	8807919	181850	20317523
Al Hassaka	53545072	7311800	5635270	66492142
Aleppo	33712098	12672205	817395	47201698
Hama	23373043	10706300	--	34079343
Loms	9018982	7752140	931550	17702672
Dar'a	1913451	6027416	293008	8233875
Damascus	17402737	13670878	40300	31113910
Deir-es-zor	35467242	4403580	348800	40219622
Al Raqa	22265136	1817650	--	24082741
Al Sweida	933627	9102226	683200	10719053
Tartous	11211892	12790500	1524075	25526467
Lattakia	3152565	8483300	105110	11740975
Al Qunietra	111036	161500	--	272036
Total	223434635	103707369	10560558	337702562

Source: Annual Reports of the Agricultural Bank.

Table 4. 7. Relative Distribution of Agricultural Cooperative Bank Loans for Selected Crops.

	1972	1973	1974	1975	1976	1977	1978
	(Percent of all ACB Loans)						
Cotton	66.6	56.7	52.2	46.8	36.5	34.1	29.0
Cereals	10.2	24.7	16.1	8.7	12.4	18.4	18.3
Sugar beet	2.4	1.9	2.7	1.8	2.0	2.8	2.6
Potato	1.5	2.1	1.9	2.3	2.1	4.5	5.1
Tabacco	0.2	0.1	0.1	0.2	0.0	0.0	0.0
Peanut	0.9	0.8	1.0	0.0	0.7	0.8	0.7
Melons and cucumbers	1.3	0.9	0.6	0.3	0.2	0.4	0.5
Olives	0.8	1.1	0.8	1.2	1.8	2.5	--
Other crops	2.1	1.7	2.4	3.3	1.8	2.8	1.8
Total crops	86.0	90.0	77.8	64.6	57.5	66.3	58.0
Agri. machines	1.3	1.8	12.0	22.3	24.7	13.0	17.6
Livestock	2.7	1.4	1.9	1.3	5.3	1.9	0.1
Feeds	0.5	0.3	0.0	1.5	1.3	2.8	--
Other	9.5	6.5	8.3	10.3	11.2	16.0	24.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Grand Total Millions of S.P.	156.8	185.3	172.9	261.9	276.0	296.7	337.7

Source: From unpublished data supplied by Icarda, taken from Annual Reports, the Agricultural Cooperative Bank.

Table 4. 8. The Relative Increase in ACB Loans for Selected Crops (1972 = 100).

	1972	1973	1974	1975	1976	1977	1978
Cotton	100	101	86	117	96	97	94
Cereals	100	287	175	143	213	343	388
Sugar beet	100	92	123	124	148	219	236
Potato	100	169	144	261	244	582	749
Tobacco	100	46	38	150	10	9	5
Peanut	100	110	127	5	134	164	162
Melons and cucumbers	100	85	49	46	33	65	82
Olives	100	153	110	242	370	565	--
Other crops	100	99	124	260	149	250	180
Total crops	100	124	100	126	117	146	145
Agri. machines	100	163	1026	2891	3359	1908	2949
Livestock	100	59	79	82	342	132	9
Feeds	100	89	140	530	500	1160	--
Other	100	81	96	181	206	319	551
Total	100	118	110	167	175	189	215

Source: From unpublished data supplied by Icarda, taken from Annual Reports, the Agricultural Cooperative Bank.

Table 4. 9. Comparison of the Value of Production to ACB Lonas Used for Selected Crops, 1972-1977.

Year	Crop or Crops Financed							
	Cotton			Cereals			All crops	
	Percent of value of prod. to all Agr. production	Percent of ACB credit utilized	Ratio of total credit utilized to value of product	Percent of value of prod. to all Agr. production	Percent of ACB credit utilized	Ratio of total credit utilized to value of product	Percent of value of prod. to all Agr. production	Ratio of total credit utilized to value of product
1972	12.8	66.6	30.9	26.3	10.2	2.3	79.9	6.4
1973	16.4	56.7	29.0	12.5	24.7	16.7	59.9	12.6
1974	12.0	52.2	20.7	31.0	16.1	2.5	76.0	4.9
1975	12.5	51.1	16.2	27.5	9.2	1.3	73.7	3.4
1976	10.1	36.5	17.8	28.6	12.4	2.1	73.8	3.8
1977	10.2	34.1	15.5	22.4	18.4	4.6	72.9	4.3
1978	*	29.0		*	18.3		*	58.0

* Data not yet available

Source: Computed by data supplied by Icarda, taken from Annual Reports of The Agricultural Cooperative Bank and periodic reports from The Ministry of Agriculture and Agrarian Reform.

12.8 percent of the total value of agricultural production and received 66.6 percent of all ACB loans. Cereal producers that year received only 10.2 percent of ACB loans while producing 26.3 percent of the value of all agricultural production. They received production loans equal to only 2.3 percent of cereal production that year, cotton producers, on the other hand, had cotton loans totaling to 30.9 percent of the total value, of cotton production, while crop loans to all crop producers in general amounted to 6.4 percent of the value of all crop production.

4.1.1.5 Comparison of ACB Loans by Type of Inputs Financed

The allocation of ACB loans by type of production input financed is outlined in Table 4.10 in terms of both Syrian pounds and percent of loans made per year for the period 1972-1978. Clearly, fertilizer is the most important farm input distributed by the bank. In 1978 the ACB loaned 90.2 million SP for fertilizer purchases, representing 26.7 percent of all their loans that year. This represents a tripling of the volume of fertilizer loans since 1972, when 30.8 million SP, accounting for 19.6 percent of all loans, were distributed. Evenso, the increase in ACB financing of fertilizers has not kept pace with the rapid increase in fertilizer use in the Republic.

Trends in other categories of inputs financed by the bank are also shown in Table 4.10. Particularly noteworthy is the heavy reduction made in short-term cash loans to farmers during the 1972-78 period and the increase in machinery loans made in recent years.

A further breakdown of these data by sector is shown in Table 4.11, again showing that ACB financing has expanded much more rapidly for the cooperative sector than for the private sector. This is especially emphasized for machinery and livestock.

The financing of agricultural animals increased from 6.9 percent of all ACB loans in 1972 to 10.6 percent in 1978. In actual current SP, the volume more than tripled. Even so, the proportion of funds allocated to livestock by the ABC is considerably below the relative importance of livestock in generating agricultural income. The ACB does not play a dominant role in financing sheep production and fattening in Syria. However, this role has increased somewhat in recent years with the development of new herd improvement cooperatives and new sheep fattening cooperatives, some of which are financed by the ACB. For the most part, however, as will be pointed out later, the ACB serves as an agent for the World Bank and other agencies in financing sheep fattening.

There are indications that some of the new herd improvement cooperatives are not proving to be as successful as planned. Apparently some of them were organized in new areas without establishing appropriate contact in the market for obtaining ready access to good livestock. Such market contacts appear to be an essential ingredient to successful business operation in sheep production and marketing.

Table 4. 10. Total Agriculture Cooperative Bank Loans by Type of Input Financed 1972-1978.

Year	Cash	Fertilizers	Seeds	Bags and Packing Materials		Machinery	Plant Protection	Agriculture Animals	Construction	Miscellaneous	Total
-----Thousands of S.P.-----											
1972	83,954.5	30,765.3	10,306.7	9,813.1	2,818.3	1,218.7	10,834.1	2,053.1	5,843.9		157,607.7
1973	82,821.8	38,425.8	36,662.2	8,946.3	3,282.4	303.6	4,903.7	2,963.1	7,016.2		185,325.1
1974	73,801.0	41,490.0	9,064.2	10,190.2	20,710.9	918.1	6,734.8	2,236.2	7,775.8		172,921.2
1975	70,415.7	77,102.1	12,032.3	9,717.0	58,355.8	1,632.8	12,547.1	5,580.6	14,594.6		261,978.0
1976	69,813.1	68,703.0	10,717.1	8,420.2	67,795.3	1,392.5	22,548.0	4,923.9	19,747.4		274,060.5
1977	76,338.9	85,780.0	26,630.1	8,222.5	38,507.7	2,056.7	26,966.7	4,766.9	27,475.3		296,744.8
1978	65,669.8	90,213.9	27,589.2	12,236.7	59,513.8	1,763.2	36,227.7	2,223.1	42,265.9		337,703.3
-----In Percent of Total-----											
1972	53.3	19.5	6.5	6.2	1.8	.8	6.9	1.3	3.7		100.0
1973	44.7	20.7	19.8	4.8	1.8	.2	2.6	1.6	3.8		100.0
1974	42.7	24.0	5.2	5.9	12.0	.5	3.9	1.3	4.5		100.0
1975	26.9	29.4	4.6	3.7	22.3	.6	4.8	2.1	5.6		100.0
1976	25.5	25.1	3.9	3.1	24.7	.5	8.2	1.8	7.2		100.0
1977	25.7	28.9	9.0	2.8	13.0	.7	9.1	1.6	9.2		100.0
1978	19.5	26.7	8.2	3.6	17.6	.5	10.7	.7	12.5		100.0

Source: Annual Reports, the Agricultural Cooperative Bank.

Table 4. 11. Agricultural Cooperative Bank Loans by Sector and by Type of Input Financed, 1972-1978.

Year	Cash	Fertilizer	Seeds	Bags and Packing Material	Agriculture				Total	
					Machinery	Plant Protection	Animals	Construction Miscellaneous		
-----Thousands of S.P.-----										
Private Sector										
1972	57,472.1	19,340.2	7,091.2	7,421.8	2,162.5	895.2	2,901.9	634.2	3,034.0	100,953.1
1973	57,225.2	26,093.5	29,912.4	6,850.0	2,496.8	242.7	2,662.6	986.6	3,619.4	130,089.2
1974	52,386.9	26,422.8	5,559.1	7,998.6	17,795.2	737.9	4,877.3	665.5	4,092.4	120,535.7
1975	47,870.9	49,774.8	6,595.7	7,054.0	46,233.3	1,455.2	4,879.3	2,326.8	6,488.6	172,678.6
1976	43,829.5	40,592.0	5,826.1	5,450.2	55,455.1	1,130.5	5,767.3	1,515.2	5,290.9	164,856.8
1977	44,101.6	47,572.8	15,798.7	5,573.8	28,231.9	1,526.7	7,870.3	939.5	4,899.3	156,514.6
1978	39,892.8	50,395.0	14,383.5	8,521.3	38,665.3	1,180.1	13,749.7	699.5	10,291.6	177,778.8
Cooperatives										
1972	23,084.7	9,037.5	3,111.9	2,379.0	655.8	290.4	2,409.2	1,379.3	2,809.9	45,157.7
1973	23,111.3	10,185.3	6,616.1	2,082.5	785.6	19.6	1,385.5	1,976.5	3,371.8	49,534.2
1974	19,672.5	11,626.1	3,494.8	2,185.0	2,915.7	161.6	1,853.2	1,570.7	3,683.4	47,163.0
1975	20,523.6	23,893.5	5,334.5	2,658.8	12,122.5	168.1	7,484.7	3,253.8	6,097.0	83,536.5
1976	22,515.6	25,055.6	4,858.5	2,965.5	12,340.2	241.1	16,587.6	3,408.7	14,350.0	102,322.8
1977	26,255.7	32,298.6	10,815.8	2,607.0	10,175.8	221.0	19,096.4	3,815.4	22,552.0	127,837.7
1978	22,249.4	32,772.2	13,162.3	3,676.9	20,848.5	457.7	22,478.0	1,523.6	31,974.3	149,142.9
Public Sector										
1972	3,397.7	2,387.6	103.6	12.3	--	33.1	5,523.0	39.6	--	11,496.9
1973	2,485.3	2,147.0	133.7	13.8	--	41.3	855.6	--	25.0	5,701.7
1974	1,741.6	3,441.1	10.3	6.6	--	18.6	4.3	--	--	5,222.5
1975	2,021.2	3,433.8	102.1	4.2	--	9.5	183.1	--	9.0	5,762.9
1976	3,468.0	3,055.4	32.5	4.5	--	20.9	193.1	--	106.5	6,880.9
1977	5,981.6	5,908.6	15.6	41.7	100.0	309.0	--	12.0	24.0	12,392.5
1978	3,527.6	7,046.7	43.4	38.5	--	125.4	--	--	--	10,781.6

Source: Annual Reports, The Agricultural Cooperative Bank.

An important part of the ACB's increased financing of livestock is related to financing the purchase of imported dairy cows. In the Douma Branch alone, for example, the manager reported financing the purchase of 580 imported dairy cows in 1978. The bank actually purchased the cows at a price of 4800 SP each. To encourage the importation of quality dairy cattle, the government paid approximately one-third of the purchase price (1500 SP) as a subsidy. The farmer was required to make a down payment of 500 SP and signed a five year note for the remaining 2800 SP of the purchase price. During 1978, a total of 4,500 dairy cows were imported through the general dairy organization, but financed through the ACB on the same basis as stated for the Douma Branch. The bank also finances livestock operations with both cash and in-kind advances.

4.1.2 Agricultural Planning and ACB Financing

The Ministry of Agriculture has a planning and statistics office which conducts studies at the Mohafaza level in preparing cost of production budgets for each of the main crops grown in that area. These estimates are sent to the Directorate at the mohafazat level for their use in preparing budgets at that level. These budgets and reports are then sent on to the national level of the MAAR for their use in preparing the Annual Production Plan for Agriculture.

There is also a planning and statistics section at each mohafazat level in the Peasants Union. They also make cost of production studies which are sent to the national level for use in representing that organization and members on the High Committee for Agriculture. Other members on this High Committee include: the Prime Minister, who serves as President of the Committee; the President of the Economic Council, who serves as Committee Vice Pres.; and committee members including the Minister of Agriculture and Agrarian Reform, the Minister of State for Planning, the Minister of Economics and Foreign Trade, the Minister of Industry, the Minister of Supply and Home Trade, the President of the Peasants Union, and the Director of Peasants Union in the Baath Party.

One important responsibility of the High Committee for Agriculture is to develop and issue an Annual Decree specifying the Schedule of Requirements for each crop for which the ACB advances in-kind and cash financing. This schedule is then binding on all ACB lending officers in all branches and specifies the maximum amount of in-kind and cash loans that can be made per donum.

In-kind loans include fertilizers, containers, some potato, cotton and Mexican wheat seeds and some farm chemicals. Cash advances are made to cover the purchase of inputs not supplied by the bank. These loans (both cash and in-kind) are made, for most crops, in two separate payments. Both the amounts and timing of these advances are specified in the Annual Decree. The specified quantities of both in-kind and cash loans for selected crops as specified for 1978 are outlined for both the first and second payments in Table 4.12. Input specifications for livestock loans are outlined in Table 4.13.

Table 4/ 12. Schedule of Input Requirements for Planting Crops/Donum.

Type of Crop	First Payment					Second payment		First Payment in Kind				Second Payment		
	Seeds kg.	In Kind			In Cash S.P.	In Kind Bags	In Cash S.P.	Fertilizers			In Cash S.P.	In Kind Bags	In Cash S.P.	
		Fertilizer						N	P	K				
		N	P	K										
Mexican Wheat (Irr.)	12	14	9.5	--	20	5	--	--	300	15	12	12	75	25
Mexican Wheat (Not Irr.)	10	8	6	--	8	2	--	--	300	4	4	4	75	25
Local wheat (Irr.)	12	10	7	--	20	4	--	--	2000	15	11	12	--	30
Local wheat (Not Irr.)	12	6	5	--	10	2	--	--	seedling or 20 g/seeds					
Barley	10	4	4	--	5	4	--	--	800	4	4	4	--	10
Lentils	10	3	5	--	15	1	15	15	seedling					
Chickpeas	6	2	5	--	10	2	15	15	100	12	9	10	100	15
Cotton (Irr.)	12	14	9.5	--	40	3	15	15	50	4	4	4	60	--
Cotton (Not Irr.)	6	--	--	--	5	1	5	5	60	12	9	10	50	--
Peanuts (Shelled)	5	4	8	4	30	4	15	15	2000	13	11	12	--	10
Peanuts (In shell)	7	4	8	4	30	4	15	15	seedling or 50 gr					
Corn (Irr.)	4	11	7	--	20	3	10	10	50 gr	11	7	7	--	10
Corn (Not Irr.)	4	6	4	--	15	3	8	10	3000 gr	11	7	7	--	10
Millet (Irr.)	2	6	4	--	12	2	8	15	12	9	7	7	--	--
Millet (Not Irr.)	2	5	4	--	8	2	15	15	5	9	7	7	--	--
Aniseed	3	8	8	--	10	3	30	30	2	13	11	12	--	--
Rice	12	12	10	10	40	--	15	15	10	9	7	7	--	--
Sugar beet	3	13	10	--	16	2	12	12	3	9	7	7	--	--
Sesame (Irr.)	2	3	6	--	14	2	10	10	2000	12	9	10	--	--
Sesame (Not Irr.)	2	2	6	--	10	2	10	10	seedling or 50 gr					
Cumin	3	4	4	--	10	2	10	10	50 gr	8	9	10	--	--
Safflower	6	3	5	--	25	--	17	17	1 kg	9	10	11	--	--
Hemp	20	4	4	--	15	4	10	10	2 kg	4	5	5	--	--
Sunflower (Irr.)	3	4	7	--	10	3	8	8	500 gr	9	10	11	--	--
Sunflower (Not Irr.)	3	3	6	--	10	3	5	5	200 gr	4	5	5	--	--
Flax	10	3	5	--	7	2	12	12	35	4	8	--	--	--
Soyabean (Irr. + Not Irr.)	6	4	8	--	14	2	6	6	200 gr	4	5	5	--	--
Bitter Vetch	12	2	4	--	8	1	--	--	35	4	8	--	8	15
Winter Rambling Vetch	15	2	4	--	11	--	--	--	30	2	8	--	8	10
Summer grazing Hilbeh	15	3	4	--	11	--	--	--	14	4	8	--	8	15
Spring grazing Hilbeh	15	2	4	--	11	--	--	--	25 Syrian Pounds per square meter per year-vegetables					
Clover (Irr.)	3	2	7	--	20	--	--	--	35 Syrian Pounds per square meter per year-flowers					
Alfalfa (Irr.)	3	2	18	--	38	--	--	--						
Tobacco	3000 seedling	15	9	7	60	--	--	--						

Source: Decree No. 308, dated 14/8/1978.

Table 4. 13. Schedule of Funding Requirements for Livestock.

Type of Livestock Enterprise	Determined Funds or In-Kind Inputs Per Unit
Layers	15 Syrian Pounds per unit
Parents	25 Syrian Pounds per unit
Broilers	4 Syrian Pounds per unit
Hatching eggs	75 Syrian piasters per egg
Milk producing sheep and goats	90 kg feeds per head in kind
Fattening sheep and goats	135 kg feed per head in kind
Imported and local dairy cows	1400 kg feed per head in kind
Akshi cows and all other local cows	540 kg feed per head in kind
Fattening calves	840 kg feed per head in kind
Funding the purchase of sheep for breeding	15 heads for each member 25 heads for each member in specified cooperative
Purchasing and funding fattening sheep	15 heads per each member
Funding the purchase of local and imported fattening calves	500 Syrian Pounds per local head 700 Syrian Pounds per imported head

Source: Decree No. 308 dated 14/8/1978.

These quantities (both cash and in-kind) are established as national averages by two stabilization zones--irrigated and non-irrigated. They do not vary by area, by soil quality (within the irrigated vs. non-irrigated classification) or by management capacity of the borrower. The amounts represent an obvious compromise among geographic areas and among the various interests on the High Committee in Agriculture.

The need for more flexibility in input allocations specifications is readily acknowledged by many responsible people at various levels. Moreover, attempts are being made to determine bases on which to build some flexibility into the system. For example, experiments are currently being conducted in selected areas to better determine differences in productivity responses for different soil types, etc. as a basis for varying the fertilizer allocation from one area to another and thus obtain greater increases in agricultural productivity from future allocations of fertilizer.

We commend this approach toward increasing the flexibility of input allocations as a means of increasing agricultural output. However, we observed in several production areas that productivity responses from fertilizer also varied greatly among different producers on a given soil type, depending on the level of management. We suggest, therefore, that consideration be given to developing objective criteria by which the management level of the borrower can be assessed and that increased allocation of selected inputs be permitted for proven superior managers. In the absence of more detailed reliable data, previous year's yields could provide a meaningful basis on which to assess management potential. Those who demonstrated higher yields than those about them would be eligible for additional inputs, thus giving strong assurance that increases in fertilizer and other inputs would be generating high pay-off to the Syrian economy. Previous year's yields also has the advantage of being readily and objectively determinable, particularly for those crops that are sold through government controlled channels.

It was the opinion of most people with whom we discussed this issue in the field that the current level of input financing was designed for low level producers. Some suggested that the inputs represented the "absolute minimum level for marginal producers" and that total agricultural productivity could be increased by increasing these allocations to the better producers.

It should be pointed out that the ACB makes available to producers additional quantities of those inputs which it handles. However, any additional quantities must be purchased with the producer's cash, rather than be financed by the bank. In fact, it is possible for producers who are not being financed by ACB to purchase inputs from the bank provided they have an approved plan of production. The proportion of inputs which ACB distributes for cash varies somewhat from area to area and branch to branch. One branch at the mantika level in the Aleppo area, for example, indicated that nearly 90 percent of its fertilizer distribution was for cash. In contrast, a branch manager in another area

stated that over 80 percent of his distribution was an in-kind loan.

4.1.2.1 Fertilizer as a Case Example

Fertilizer provides an interesting case study in input distribution. On the surface, the distribution procedure appears to be rather fixed and inflexible. The ACB is supposed to operate as a monopoly in the distribution of fertilizer, following carefully the rules outlined above. However, in every mohafazat in which we were able to make inquiry, significant quantities of fertilizer currently appear to be available "in the market"--i.e., available for purchase outside the control of the ACB. In many cases the price of this "free market" fertilizer was higher than prices charged by the ACB. But there were notable exceptions when it was lower. What appears to be happening is that producers (usually marginal producers), facing serious cash flow problems, are able to obtain and store this fertilizer in their home until it is sold to generate needed cash. The result appears to be a net shifting of fertilizer from low-level to high-level producers while at the same time helping low-level producers to at least temporarily solve some pressing cash flow problems. By this means, considerable flexibility is apparently being built in to the process of fertilizer distribution.

4.1.2.2 Purchasing and Financing Machinery Through ACB

An important objective of both the MAAR and the ACB is to encourage mechanization of many farming operations -- especially land preparation, seeding of some crops and the lifting of sugar beets. Study is now being given to the mechanization of cotton picking in selected areas. The ten-fold expansion of medium-term loans by the ACB since 1970, as shown earlier in Table 4.4 is due, heavily, to the support given to mechanization. Even so, most farmers and cooperative leaders and the majority ACB branch managers whom we interviewed expressed a need for additional funds with which to finance the purchase of tractors and other machines.

To finance a tractor through the ACB, a private borrower must present an application to the bank. If he pays in cash less than one-half the purchase price at time of purchase, he must pledge the title to land as security. The balance can be financed by the bank with terms ranging up to five years. If he pays in cash one-half or more of the purchase price, he will not need to pledge his land; the tractor will serve as security. However, if he owns no land, he will have to pay cash for the tractor -- a practice which tends to preclude a farmer who doesn't own land from buying a tractor. For private unlicensed* borrowers, a request for medium-term loan to finance machinery must be reviewed by a committee comprised of representatives from the Peasants Union, the MAAR and the ACB. A cooperative must file an application with the Peasants Union and have permission included in the next annual plan in order to buy a tractor.

* The significance and procedure for licensing is explained in the following section.

4.1.3 Who Can Borrow From the ACB?

The general attitude prevails among most farmers, the Peasants Union, the MAAR and even in the bank that it is the right of every Syrian farmer to borrow from the ACB. For loans to finance non-crop related purposes (such as livestock purchases, feed, poultry, etc.) he need only present a written application to the bank, explaining the purpose. Once the bank officer is convinced that the loan will be used for the purpose specified, he will evaluate the application. For crop loans, however, the borrower must obtain a license specifying the amount of each crop to be grown and the appropriate inputs must have been requisitioned by the bank.

To obtain a license, the farmer must first report to a local agricultural engineer working for the MAAR with evidence that he has control over land for farming. This evidence might be title to land or a rental agreement approval by the local Ministry of Justice. The farmer can express his preference on the proportion of crops he desires to grow. The agricultural engineer will fit these desires into the acreage allocations specified in the Annual Production Plan for that immediate area. The resulting crop area assignment will likely represent a compromise from the farmers's original preferences. However, once the number of donums for each specified crop has been determined, the agricultural engineer uses the published Annual Decree of Input Requirements as outlined in 4.12 (for crops) to determine the necessary requirements (in-kind and cash) and enters them into the requisition.

The farmer then takes these forms to the mantika office of the MAAR for rechecking and approval. This process can pose a serious problem to a small producer who has no means of motor transportation, who is illiterate and who lives a considerable distance from the mantika headquarters. To the progressive, educated farmer who has transportation, this procedure, which is so cumbersome to others, might be little more than a day's time.

Once the requisition is signed by the mantika office of the MAAR, the farmer takes the forms to the local branch of the ACB and they advance to him the inputs as specified in the requisition, including the first cash payment. The process is automatic, requiring no decision on the part of the bank lending officer other than to insure that the necessary forms are complete, that the appropriate instructions are passed on to those bank employees responsible to dispense the inputs and (very important) to be sure that the farmer properly pledges his real estate as security or that his loan is signed by a guarantor with financial strength. From this point on, the lending officer will have little to do with the case unless the farmer needs additional funding for plant protection or machinery repair.

If problems of plant disease or insects arise, the farmer goes to the nearest agricultural engineer of the MAAR who will either determine the nature of the problem (or call in an expert from a higher level) and prescribe treatment. Once the prescription of chemicals is checked and

approved at the mantika level, including both the mantika level plant protection specialist and the higher administrative officer of the MAAR, the farmer returns to the ACB branch for the chemicals or pesticide control service. If the prescribed chemicals are available they will proceed to supply them from available stock. Otherwise the ACB will secure them as soon as possible. If the prescription is for chemicals not provided by the bank, the bank will advance funds as determined by a special committee and the farmer can go to a commercial farm chemical or pesticide company for the materials and/or service. The private companies also have equipment that can be purchased or leased and they frequently help the farmers with application, on a fee basis. It is not surprising that the private market in farm chemicals and pesticide control is expanding despite the usually lower costs available through ACB. The private firms not only require less administrative "red tape" and delays, they also provide more flexibility.

Financing of tractor and machinery repairs by the ACB are usually limited to a range of 40 to 60 percent of the costs. Since these cannot be anticipated, they are not included in the "Schedule of Inputs Requirements". Instead, a committee at each bank reviews requests for machinery repair and determines the needs and the amount to be financed for each request.

For farmers belonging to a cooperative, the process of obtaining the license and approval for ACB financing is greatly simplified. In this case, the cooperative representative assembles the farm plans of the members, including land titles and leases. He then develops an overall crop allocation plan in accordance with the guidelines on allocation of various crops given by the local agricultural engineer of the MAAR. Next, he obtains approval and license from the mantika level of the MAAR and arranges with the local branch of the ACB for delivery of the physical inputs and cash to the members. The cooperative also serves as guarantor of the loan for each individual member.

The system appears to be working quite well in situations where the cooperative membership is rather homogeneous in terms of size of operation, types of crops grown, etc. and where the cooperative has strong leadership. The plans get developed and approved within the cooperative and approved all along the lines in a timely fashion. However, we came across instances where a combination of poor leadership, internal conflicts within the cooperative, and bureaucratic delays along the way delayed final approval of licensing and financing sufficiently to cause serious timing problems in gaining access to production inputs. Farmers with alternative access to cash were able to go to the open market to purchase their inputs, while the poorer farmers were seriously delayed in planting, with unfortunate economic consequences.

For public firms (state farms), the manager of the state farm is responsible to draw up the annual farm plan specifying the number of hectares of each crop to be grown. This plan is formulated within a set of rather strict guide lines assigned to that farm by the MAAR. Once the details of this plan are agreed on and approved by the

appropriate officers, the MAAR negotiates the financing arrangements with the ACB. The local state farm manager deals directly with his superiors within the MAAR rather than with ACB lending officers on all matters pertaining to finance.

We encountered several manifestations of human attributes which seems to affect bureaucracies in all societies, wherein administrators envisioned themselves as "protectors of the rules" rather than as "expeditors of the process for achieving objectives." General solutions to such problems associated with financing of Syrian farmers lie primarily in: (1) more goal-oriented training for both the leadership of cooperative and MAAR administrators at the nahia and mantika levels, and (2) providing as much flexibility as possible in the rules. When administrators at all levels have a clear understanding of both the objectives and the general principles for achieving those objectives, adequate control can be maintained without the dominance of restrictive rules.

4.1.4 Flexibility in The System

On the surface, the planning and financing system for Syrian Agriculture appears to be very rigid, with very little flexibility to adjust to changing weather and economic conditions once the planned hectarages for specific crops have been assigned to mahofazats, mantikas, nantias and even to individual producers (both private and cooperative). However, a review of the actual hectares planted to selected crops in comparison with the hectares of the crop that were planned for the year reveals that considerable flexibility does, in fact, exist. Actual hectares planted expressed as a percent of hectares planned for selected crops is shown for 1974-75 and 1976-77 in Table 4.14. As one would expect, the deviations are much greater for non-irrigated crops than for irrigated crops, indicating that farmers make considerable adjustments from their assigned hectarages of non-irrigated crops in response to weather conditions. In 1974-75, for example, Aleppo farmers planted only 21 percent of the number of hectares of dry land cotton that were assigned to them in the annual plan. During that same year GHAB farmers planted over five times the hectares of dry-land cotton assigned to them. For all of Syria, however, there was only a five percent deviation between planned and actual hectarages of non-irrigated cotton.

Comparisons for other non-irrigated crops for selected years is instructive. In general, these data show that substantial adjustments are made in hectares planted in response to local weather conditions, but that the total deviations tend to be very modest.

Table 4. 14. Actual hectares planted of selected crops, as a percent of hectares planned.

	Irrigated Crops										Non-Irrigated Crops																						
	Cotton		Barley		Summer sugarbeets		Fall sugarbeets		Mexican Wheat		Wheat other than Mexican		Lentils		Cotton		Barley		Mexican Wheat		Wheat other than Mexican		Lentils		Chick peas		Fall Sugar beets						
	1974- 1975	1976- 1977	1974- 1975	1976- 1977	1974- 1975	1976- 1977	1974- 1975	1976- 1977	1974- 1975	1976- 1977	1974- 1975	1976- 1977	1974- 1975	1976- 1977	1974- 1975	1976- 1977	1974- 1975	1976- 1977	1974- 1975	1976- 1977	1974- 1975	1976- 1977	1974- 1975	1976- 1977	1974- 1975	1976- 1977	1974- 1975	1976- 1977	only				
Mohafazat																																	
Damascus	.80	1.03	1.03	--	.61	.80	--	--	1.03	.96	.95	1.88	1.52	--	--	--	1.19	1.47	.98	.74	--	--	.89	.72	--	--	1.19	1.47	.98	.74	1.37		
Homs	.87	.89	1.93	2.23	.97	.85	.84	.97	1.04	.89	1.08	.53	1.28	.54	.48	1.97	.48	2.11	1.04	.93	.94	.54	.48	1.02	.82	1.97	.48	2.11	1.04	.93	.94	.34	
Hama	.98	.99	.74	1.18	.20	*	.73	.78	1.07	.77	.75	.44	.89	.82	1.09	1.13	1.17	1.23	1.32	.93	.99	.82	1.09	1.35	.87	1.13	1.17	1.23	1.32	.93	.99	.99	
Ghab	.81	.85	--	--	1.45	.38	.28	1.04	0	--	--	--	--	5.33	.79	1.34	.83	.97	.58	.98	1.09	5.33	.79	.83	1.80	1.34	.83	.97	.58	.98	1.09	.02	1.00
Aleppo	1.08	1.07	1.21	--	2.86	*	--	--	.84	1.16	1.46	.54	.95	.21	1.44	1.01	1.10	1.25	1.38	1.10	1.34	.21	1.44	.98	.84	1.01	1.10	1.25	1.38	1.10	1.34	.34	
Idleb	1.04	1.37	1.85	--	1.39	.18	.50	.61	.78	.84	1.75	--	--	.66	.50	.57	.46	1.06	1.13	.80	1.39	.66	.50	1.03	1.43	.57	.46	1.06	1.13	.80	1.39	.29	
Lahakia	--	--	--	--	--	--	--	--	--	--	--	--	--	1.15	--	1.03	.97	.89	1.47	1.14	1.00	1.15	--	1.01	.94	1.03	.97	.89	1.47	1.14	1.00	.63	
Tartous	--	--	--	--	--	--	--	--	0	.62	0	.66	--	--	--	.78	.79	1.05	1.34	1.30	1.17	--	--	1.09	3.84	.78	.79	1.05	1.34	1.30	1.17	1.04	
Al-Rakka	1.34	1.01	2.30	--	--	*	--	--	.66	.78	1.09	--	3.91	--	--	--	**	1.74	1.06	--	--	--	--	1.47	.99	--	**	1.74	1.06	--	--	--	
Deir Ez-Zor	.98	.96	.80	.94	--	--	--	--	.88	.90	.76	--	.66	--	--	--	--	--	--	--	--	--	--	1.26	.92	--	--	--	--	--	--	--	
Hasakeh	1.06	1.04	.83	--	--	--	--	--	.82	.94	.67	--	.79	2.16	1.12	1.00	.96	1.02	1.82	1.90	.52	--	2.16	1.12	1.00	.96	1.02	1.82	1.90	.52	.04		
Darala	--	--	--	--	--	--	--	--	--	--	.74	1.12	1.00	.30	.27	--	--	.61	1.22	.21	1.49	--	--	.30	.27	--	.61	1.22	.21	1.49	7.14		
Sweida	--	--	--	--	--	--	--	--	--	--	--	--	--	.60	.49	--	--	.60	.77	.14	.69	--	--	.60	.49	--	.60	.77	.14	.69	.40		
Quneitra	--	--	.43	--	--	--	--	--	--	--	.46	.67	--	.53	1.00	--	--	.60	1.00	.24	1.00	--	--	.53	1.00	--	.60	1.00	.24	1.00	1.00		
Euphrates Basin	.45	--	--	--	--	--	1.00	--	.83	--	0	--	--	--	--	.99	.90	1.14	1.39	.85	.90	1.05	.83	1.29	.93	.99	.90	1.14	1.39	.85	.90	.63	
Total	1.02	.99	1.01	2.01	.84	1.57	.58	.94	.78	.90	.90	1.13	1.04	1.05	.83	.99	.90	1.14	1.39	.85	.90	1.05	.83	1.29	.93	.99	.90	1.14	1.39	.85	.90	1.00	

* Have actual hectares planted, none planned.

**Actual includes Euphrates Valley; planned did not.

Source of Data: State Planning Commission

Irrigated crops, however, are less dependent on rainfall than are non-irrigated crops. Hence, as expected, the deviation of actual from planned hectares planted are less extreme at the mohafazat level for irrigated than for non-irrigated crops. Notice, also, that there is less of a tendency for the deviations within mohafazats to be off setting among irrigated crops than among non-irrigated crops. Thus, the total deviations for all of Syria tend to be higher for irrigated crops than for non-irrigated crops. This could well indicate that farmers are adjusting their hectares planted of irrigated crops in response to national prices and economic conditions rather than to local weather conditions.

Unfortunately these comparisons are limited to data for only two crop years. However, both the mohafazat and nation wide totals are consistent with the following hypotheses: (1) farmers tend to adjust hectares planted of non-irrigated crops primarily in response to changing weather conditions, since moisture is a dominate controlling factor; (2) however, under irrigation, where, moisture is no longer the dominant uncertainty, they tend to adjust hectares planted in response to economic conditions.

When we presented these data to some personnel in the MAAR, in The Peasants Union, and even in the ACB and asked for an explanation they expressed this tendency for deviation as evidence of inadequate leadership in the planning and control of the System and a lack of education and discipline among farmers. We think otherwise. Of necessity, the national plans must be made early in the year before weather and economic conditions can be known. Given the weather uncertainty that prevails in many areas of Syria, with a pattern of high variability about moisture level that is near the margin for non-irrigated crops, it is important that farmers maintain the flexibility to adjust the hectares planted to various crops in order to better adjust to and exploit available moisture. Similarly, it will usually be to Syria's advantage when farmers have flexibility to adjust crop planting to take advantage of changing economic conditions, even when moisture is not a dominant factor. Thus, on balance, we commend those administrators responsible for allowing the flexibility that is manifest by the data in Table 4.14 and strongly suggest that these conditions be preserved.

4.1.5 Interest Rates for ACB Loans

The rates of interest charged to ACB borrowers are fixed by decree and have not changed for several years. These rates are charged to all borrowers irrespective of the size of loan, financial strength of the borrower or the amount of funds the borrower might have on deposit with the bank. These rates are:

Loan advances to:	Short term	Medium term	Long term	
			1st 5 years	2nd 5 years
Cooperative	4	2	2	4
Public firms	4	2	2	4
Private individuals	5.5	3	3	5.5
Private individuals (with loans exceeding SP 50,000)	-	-	6	7.5

Cooperatives receive a rate concession of 1.5 percent as a special incentive to encourage these organizations. The cooperative performs several important functions in the preparation of credit applications, in the distribution of in-kind and cash loans to members and in the supervision of credit application and repayment. In return for these services they receive ACB loans at 4 percent and charge their members 5 percent. This one-half percent interest-rate preference over private borrowers is given as an added incentive for farmers to join cooperatives.

Tree production loans can be made with 10 year maturities. During the first five years the interest rates are: 2 percent per year for public firms and cooperatives and 3 percent for private firms. For the remaining 5 years, the rates are 4 percent for public firms and cooperatives and 5.5 percent for private firms.

All the above rates are clearly and purposely way below free market rates. These subsidized rates are one important way in which the Syrian government provides both a subsidy and production stimulus to small peasant farmers. There are obvious political and economic reasons for placing rather low limits on the size of loans that can be borrowed at these subsidized rates. However, as we point out elsewhere, there is evidence that some farmers who are not receiving adequate financing through the ACB are obtaining financing through either input suppliers or marketing firms. We will return to this point with a specific recommendation at the close of the next section discussing size of loan limits.

4.1.6 Size-of-Loan Limits for ACB Loans

As explained above, since rates charged on ACB loans are highly subsidized, rather severe limits are placed on the maximum size of loan a branch manager can make to borrowers. Within the limits of his own authority, the branch manager can loan up to 40,000 SP to one individual for short term financing and 20,000 SP for medium term or long term loans. For loans beyond these limits, the manager must seek authority from the Director of the Bank in Damascus, and from the Director of the Central Bank.

According to the Director of ACB, about 25% of the loans to farmers exceed the lending authority of branch managers. We suggest that for purposes of operational efficiency, consideration be given to increasing the lending authority of branch managers to where not more than 15% of the loan applications must be forwarded to headquarters for a decision, thus avoiding the expense and delay of forwarding so many loan applications to headquarters. More importantly, we found that the percentage of loans handled within the lending limits of the branch manager varied

considerably from one area to another and from branch to branch. Some of the more productive areas and in areas where farm size is larger or where agriculture is more mechanized, loan sizes are larger.

We suggest that consideration be given to varying the size-of-loan lending authority of branch managers based primarily on two criteria: (1) the size-of-loan pattern in the area being served; and (2) the demonstrated credit management skills of the manager and his staff. We recommend that the level of lending responsibility delegated to the manager should not be increased until he has demonstrated his skill and judgement in credit analysis and his ability to train and supervise his lending staff. The possibility of increasing his lending authority and thereby being able to serve his customers more promptly should act as an incentive for managers to increase their skills in financial analysis and credit management and to initiate training programs and supervision for his lending officers.

A Committee at Damascus headquarters of the ACB can approve loans to private operators (and individual members within a cooperative) up to 100,000 SP for short-term loans and 60,000 SP for medium and long term loans. Approval for loans beyond these limits must be given by the Director of the Central Bank. The loan limits for cooperatives is 1 million SP for short-term loans and 500,000 SP for medium and long-term loans with the approval of the headquarters committee at the ACB, and in excess of this limit (and in accordance with the needs of the cooperative) with approval of the Director of the Central Bank and the intercession of the Peasants Union.

There appear to be serious size of loan restrictions associated with the financing of individuals crops to a single grower. For example, the limit is 40,000 SP for cotton, 25,000 SP for cereals, and 10,000 SP for other crops. These restrictions pose serious constraints on the ability of farmers to expand production of particular crops through specialization and mechanization. The 10,000 SP loan limit on sugarbeets, for example, runs directly counter to the MAAR objective of expanding sugarbeet production.

The need for mechanization and increased use of new technology is pushing both individual farmers and cooperatives to become more specialized. As they do, the above loan limits on individual crops will become an increasingly serious constraint. Therefore we recommend that the specific crop constraint on loan size be eliminated.

On the surface, there appears to be ample flexibility within loan policy and procedure for the ACB to meet the needs of most borrowers, both private and cooperative, aside from the individual crop constraint noted above. There seems to be both a mechanism and attitude at headquarters as well as at the branches for the ACB to meet the needs of the larger borrowers. However, we came across a number of private borrowers and occasionally a cooperative who felt that the bank was not able to meet the needs of larger borrowers. There are indications that a number

of larger private operators are not turning to the bank because they believe the lending limits of the bank are such that the bank couldn't meet their needs.

Our limited observations in villages, augmented by discussions with research teams on other projects and representatives of various divisions serving Syrian agriculture at mohafazat and mantika levels, supports the hypothesis that a substantial number of productive farmers are not being financed by the ACB because they (the farmers) feel that the lending programs of the bank are too restrictive, either in terms of the amount of inputs per donum or the total volume of loan which an individual might receive, or both. Many of these producers likely fall in the general size of loan range between the present lending limits of the branch manager (40,000 SP for short-term loan) and the limits specified above for approval by the headquarters committee. Therefore we suggest that serious study and consideration be given to developing a program to inform the more productive private operators and cooperatives regarding the flexible lending limits which have already been developed within the present policy. Moreover, some effort should likely be devoted to instructing all bank employees at the branch level regarding these policies.

If increased production of Syrian agriculture is an important objective of the government Ministries, we suggest that the greatest response can come from extending more adequate funding to the more productive growers, both within and outside of cooperatives.

Care would need to be taken to insure that a policy of making loans more readily available to more productive and larger producers did not conflict with either the spirit or law of agrarian reform. Hence, any new loan limits (if modified) should be geared closely to capital needs of farmers operating within the size limits specified in the Agrarian Reform Law. This limit could be estimated closely for various enterprises and areas through a series of detailed cash-flow budget studies. These studies could then form the central bases on which a new policy regarding size-of-loan limits would be determined by the High Committee on Agriculture.

Our argument, here, is that a considerable gap exists between the present program as it appears to be operating in the field and the absolute size-of-loan limits implied in the Agrarian Reform Law. We suggest that better funding of producers operating within this gap could have a high pay off to the Syrian economy in terms of increased and agricultural output.

One argument against a policy of making more loans to the larger, more effective producers is that the rates charged by the ACB are highly subsidized. To avoid subsidizing those growers who tend not to need it we suggest that consideration be given to further increasing interest rates at some level. This concept is already applied, in part, when loans to private farmers beyond 50,000 SP are charged a rate of 7.5%. Another limit could be established at some higher level determined by the High Committee for Agriculture (possibly at 100,000 to 150,000 SP) at which the rate would be further increased to some point more nearly approximating the market rate of interest.

4.1.7 Source of Funds for ACB

The ACB goes directly to the Central Bank of Syria for most of its funds with which to make short-term loans. These funds are obtained on terms not to exceed 10 months. The present limits for discounting short-term loans is 150 million SP but these limits can be exceeded with permission from the Director of the Central Bank of Syria. Negotiations are between the Central Office of ACB and the Central Bank, with the ACB branches obtaining their short-term funds through the ACB Central Office. The rate charged the ACB by the Central Bank for short-term loans is 2.0 percent.

We found no evidence that any serious limitations existed in access to short-term funds from the Central Bank which posed a constraint on the ACB's volume of short-term loans. In general, the Central Bank appears to have made readily available to the ACB whatever volume of short-term loans were required to carry out the Annual Plan. More importantly, the Central Bank appears to be willing to respond over and above the specifications of the Annual Plan if weather conditions or other events cause serious credit constraints to particular sections of agriculture. Farmers, collectively, appear to have sufficient strength of representation in the political process to obtain favorable responses from the Central Bank to special needs for addition funding on the part of the ACB when faced with unanticipated credit constraints.

Funds for ACB loans for medium and long-term loans come, primarily, from two sources: (1) the bank's capital and surplus, and (2) deposits made at the bank. An exception is that the ACB can discount with the Central Bank up to 40 million SP of medium-term loans to cooperatives.

As shown in Table 4.15, ACB deposits experienced a four-fold increase from 1971 to 1978. Although the public and cooperative sectors have been the primary sources of deposits in the past, the private sector has demonstrated the fastest rate of growth -- particularly during the last five years. We suggest that increased deposits can be a significant source of funds for the ACB in the future. Some of these deposits will occur automatically as both the number and financial strength of state farms and cooperatives continue to increase. However, the big potential for increased deposits lies in the private sector. As these producers gain more confidence in the marketing system and become more business-like in their buying and selling they will tend to use checking accounts and other bank services. The trends of the past four years within the private sector is perhaps indicative of the potential that might be tapped in the years ahead. Because of the very small base, total deposits will remain low relative to the demands for medium and long-term loans in the immediate future, even though the long range outlook is encouraging.

Table 4.15 All Deposits in The Agricultural Cooperative Bank by Sectors, 1971-1978.

Year	Deposits in thousand of SP			
	Public Sector	Cooperative Sector	Private Sector	Total
1971	18,523	23,016	2,809	44,348
1972	29,557	27,016	3,726	60,299
1973	70,362	38,392	4,783	83,537
1974	49,804	41,443	5,716	96,963
1975	63,092	56,499	7,299	126,890
1976	74,349	57,133	17,217	148,699
1977	83,296	60,430	23,677	167,403
1978	78,106	62,010	37,500	177,616
1978/1971	4.22	2.69	13.35	4.01

Source: Annual Reports, The Agricultural Cooperative Bank.

The patterns of growth in the ACB's capital and surplus is shown in Table 4.16. Clearly, these sources of funds have not been growing as fast as have the banks medium and long-term loans. While medium and long term loans were increasing by 300 percent between 1972 and 1977, the banks capital and surplus increased by less than 50 percent.

Sources of increases in Bank Capital include:

- (1) Legislative decree 141 specified that a proportion of the Bank's profit can be retained and added to the Bank's capital account each year. This proportion is to be determined each year by the Minister of Finance. In recent years this percentage has been set to provide approximately four to five million SP per year.
- (2) Six percent of the taxes from agriculture are specifically allocated to the ACB for additions to capital.
- (3) Legislative decree 141 also allocates from appropriated funds two million SP per year for increases in the Bank's Capital. However, in recent years this fund has not been called on by the Bank.

For 1978, the bank's profit of 22,783,981 SP was allocated as follows:

<u>Allocation</u>	<u>Percent Allocated</u>
Revisions of in-kind materials to be sold	18.3
Revisions of interests to be collected	12.1
Payment in fulfillment of rest of interests that have been exempted by Decree No. 33 for the year 1976 as well as by Decree No. 46	11.9
Legal Reserves	20.3
Reserve of supporting agricultural plan	5.8
Addition to Capital	<u>31.8</u>
Total	100.0

Thus, 7.3 million SP was added to the bank's capital, 4.6 million SP was added to the bank's legal reserves and 2.8 million SP was added to provisions for losses from the 1978 operations.

In view of the rapid rate of increase in medium term loans in recent years and the evidence of the expressed need and plans for higher rates of expansion in capital investment, the sources of funds currently available to the ACB with which to make medium and long term loans remain seriously inadequate, looking to the future. Leadership in the ACB appears to be well aware of the need to increase their capacity to make medium term loans. They are following their five year plan of increasing total loans by nearly 90 percent and of placing greater emphasis on medium-term loans, even at the expense of short-term loans. They appear to have the support of all the relevant Ministries in this plan.

Although we commend the program of increasing the availability of medium-term loans, we strongly suggest caution in reducing the availability of short-term loans. In general, short-term agricultural loans used to finance the purchase of production inputs such as seeds, fertilizers and chemicals or to pay for harvesting and other needed operations have a high marginal pay off. Reducing the volume of short-term financing could have an adverse impact on agricultural productivity.

As additional emphasis and support for increased medium and long term loans without reducing short-term loans, we recommend three courses of action. First, we recommend that the ACB be permitted to discount at least part of its medium and long term loans to the private and public sectors with the Central Bank of Syria. This would not only provide the ACB with an important additional source of longer-term funds, it would also subject its medium and long-term financial analysis and lending decisions to the regular scrutiny of the financial expertise of the Central Bank. It is apparent that an overt program of personnel upgrading

Table 4. 16. Agricultural Cooperative Bank Condensed Balance Sheets, 1972-1977.

	1972		1973		1974		1975		1976		1977	
	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total
(Thousands of SP)												
Liabilities & Equity												
Deposits	60,299	15.0	83,536	19.4	96,963	20.7	126,518	21.6	147,766	23.1	167,404	23.2
Borrowings	72,807	18.1	71,923	16.7	50,440	10.8	55,492	9.5	75,864	11.8	78,992	11.0
Other Liabilities ^{1/}	99,538	24.7	97,181	22.5	131,148	28.0	196,911	33.6	191,099	23.9	233,868	32.4
Sub-total	232,644		252,640		278,551		378,921		414,729		480,264	
Paid-up capital	75,620	18.8	78,309	18.2	87,768	13.7	95,253	16.2	104,128	16.3	108,578	15.0
Reserves	8,086	2.0	8,086	1.9	13,458	3.9	17,736	3.0	21,697	3.4	24,576	3.4
Provision	72,671	18.0	73,131	17.0	74,387	15.9	75,513	12.9	82,965	13.0	85,039	11.8
Current-year's-profit	13,500	3.4	18,852	4.3	13,986	3.0	18,830	3.2	15,928	2.5	22,784	3.2
Sub-total	169,877		178,378		189,599		207,332		224,718		240,977	
Total	402,521	100.0	431,018	100.0	468,150	100.0	586,253	100.0	639,447	100.0	721,241	100.0
Assets												
Cash & Current Bank Bal.	84,754	21.0	92,518	21.5	107,881	23.0	119,242	20.3	140,815	22.0	167,404	23.2
Investments	6,355	1.6	6,968	1.6	5,691	1.2	5,691	1.0	5,691	0.9	5,691	0.8
Loans & Advances	179,866	44.7	222,868	51.7	194,589	41.6	243,558	41.5	287,836	45.0	321,194	45.9
Other Assets ^{2/}	131,546	32.7	108,664	25.2	159,989	34.2	217,762	37.2	205,105	32.1	216,952	30.1
Total	402,521	100.0	431,018	100.0	468,150	100.0	586,253	100.0	639,447	100.0	721,241	100.0

^{1/} Includes amounts payable to general organizations for fertilizers, seeds, etc.; amounts due farmers for cotton sales and dues under settlement.

^{2/} Includes inventory of agricultural inputs, interest receivable, fixed assets and dues under settlement.

Source: Annual Reports Agricultural Cooperative Bank.

and training in financial analysis would be required at the branch level in many of the branches before totally successful performance by leading officers could be expected. Second, we recommend that ACB be encouraged to expand their work with such organizations as the World Bank, the Arab Development Funds and others to obtain outside sources of funds for Syrian farmers. Third, we recommend that a promotional campaign designed to encourage farmers to use the checking account services of the ACB be undertaken to augment the trend toward increased bank deposits.

4.1.8 ACB Income Statement Analysis

A condensed summary of income and expenses for the ACB is presented in Table 4.17 for the years 1972-77. (Data for 1978 were not available to us by June 21, 1979). 1977 was a year of record profits, to date, rebounding from the downturn experienced in 1976. Particularly noticeable in 1977 was the large increase in revenue from non-banking services, namely, the distribution of in-kind inputs. Although the total amount received as interest on loans increased about 800,000 SP from 1976 to 1977, in relative terms, interest received declined from 56.6 percent to 47.1 percent of total income.

On the expense side of the ledger, salaries and staff benefits increased, in both money and relative terms, continuing the general upward trend. This category accounted for 57.8 percent of all expenses in 1977. It is noteworthy that the number of employees actually declined between 1976 and 1977. Hence, increased salary levels more than account for all this increased cost. This analysis indicates that the percent policy of paying higher salaries is paying dividends in improved levels of management and cost control. For example, salaries as a percent of total income decline from 26.7 to 25.1 percent. More importantly, total expenses as a percent of total income declined from the high figure reached in 1976 (51.3 percent) to a more reasonable 43.4 percent.

4.1.9 Supervision of ACB

The Agricultural Cooperative Bank operates under the supervision and control of the Minister of Economics and Foreign Trade. As explained earlier, it receives most of its loanable funds by discounting its short-term farm loans with the Central Bank of Syria. Hence, it has a close working relationship with, and in some details is supervised by, the Central Bank. However, it is strongly influenced by both the MAAR and the Peasants Union, since these two agencies exert a dominant influence in the preparation of the Annual Plan for agriculture, which specifies the hectarages of the various crops that are to be planted and the amount on in-kind and cash loans to be allocated per donum of each crop.

One question posed to us as part of our assignment of assessing the adequacy of credit was whether or not it would be advisable to transfer the administration of the ACB from the Ministry of Economics and Foreign Trade to the MAAR.

Table 4. 17. Agricultural Cooperative Bank Condensed Income and Expenditure Statements 1972-1977.

	1972			1973			1974			1975			1976			1977		
	% of		Total	% of		Total	% of		Total	% of		Total	% of		Total	% of		Total
	Amount	Inc/Exp		Amount	Inc/Exp		Amount	Inc/Exp		Amount	Inc/Exp		Amount	Inc/Exp		Amount	Inc/Exp	
I. <u>Income</u>																		
Int. on loan & advances	16,762	75.7	15,685	55.3	14,406	59.8	15,091	47.7	18,517	56.6	19,333	47.1						
Int. on invest. etc.	229	1.0	360	1.3	346	1.5	175	0.6	110	0.3	112	0.3						
Commission, fees, etc.	1,323	6.0	6,932	24.4	1,138	4.7	1,112	3.5	1,674	5.1	1,871	4.6						
Other Income (non-banking activities)	3,818	17.3	5,386	19.0	8,180	34.0	15,269	48.2	12,433	38.0	19,704	48.0						
<u>Total Income</u>	22,132	100.0	28,363	100.0	24,070	100.0	31,647	100.0	32,734	100.0	42,020	100.0						
II. <u>Expenditure</u>																		
Int. in depts. & borrowing	4,123	47.8	4,155	43.7	3,942	39.1	4,948	38.6	6,366	37.9	7,169	39.3						
Salary & staff benefits	3,758	43.5	4,329	45.5	5,243	52.0	6,600	51.5	8,751	52.1	10,545	57.8						
Other operational exp.	751	8.7	1,027	10.8	899	8.9	1,269	9.9	1,689	10.1	522	2.9						
<u>Total Expenses</u>	8,632	100.0	9,511	100.0	10,084	100.0	12,817	100.0	16,806	100.0	18,236	100.0						
III. <u>Net Income (Profit) of the year (I-II)</u>	13,500		18,852		13,986		18,830		15,928		22,784							
Financial Ratios																		
% of tot. income to tot. funds ^{1/}	5.5		6.6		5.1		5.4		5.2		5.2							
% of net income to tot. funds ^{1/}	3.3		4.3		3.0		3.2		2.5		3.2							
% of tot. exp. to tot. income	39.0		33.5		41.9		40.5		51.3		43.4							
% of int. on deposits & borrowing to total income	18.6		14.6		16.4		15.6		19.4		17.1							
% of salaries & benefits to total income	17.0		15.3		21.8		20.9		26.7		25.1							

1/ Balance Sheet Total

Source: Agricultural Cooperative Bank, Damascus.

The primary advantage of this arrangement would be that the full and possibly less restrained services of the ACB could be directed toward achieving the goals developed largely by the MAAR and the Peasants Union and reviewed, modified and approved by the High Committee for Agriculture. Those who develop the goals and who therefore feel the greatest responsibility for achieving them, would then also control the source of funding farmers in achieving those goals.

Despite the advantage, we recommend against this proposal, for the following reasons. First, we feel that spreading the responsibility and procedures for controlling the distribution of loanable funds among various ministries could weaken Syria's system of monetary control. It is important to national monetary stability that those responsible for monetary control avoid conflicts-of-interest situations and thus maintain professional objectivity. Placing the ACB under the control of the MAAR would create potential conflicts of interest. We already sense a need for greater objectivity among ACB lending offices in order to make and administer their lending program based on financial analysis. We would see placing the ACB under the MAAR as a further shift toward distributing loanable funds based on universally-applied rules rather than sound credit principles.

Second, the present arrangement seems to be working in the sense that the Central Bank is sensitive to the expressed needs of agriculture. Not only has the Central Bank made funds available to the ACB in accordance with the Annual Decrees, they have also been flexible in increasing funding beyond the specifications of the Annual Decree when emergency situations arose. Most of the current financing problems are the result of policies and/or procedures that can readily be modified within the present arrangements. Several recommendations for such modifications are included in this report.

4.2 NON-ACB SOURCES OF CREDIT

Although the ACB is the primary source of credit to Syrian farmers, there is a variety of other sources, most of which can neither be clearly defined nor adequately quantified with the limited information and data which we were able to obtain. Within the limits of these data and information, we will describe these non-bank sources of loan funds and attempt to assess their impact on agricultural productivity.

4.2.1 Linkages to Other Specialized Banks

Both the Commerical Bank and the Industrial Bank make loans to some agriculturally related firms. In 1978, these loans were estimated at about 55 million SP, compared with over 68 million SP in 1970. The volume has tended to fluctuate between these two figures for the years in between. For the most part, these are loans to finance the export of agricultural products. As such, the supply funds by which farmers receive money for their crops long before the crops are sold in the international market. However, it appears, that some of these loans are made to agribusiness firms which, in turn, allocate at least a portion of their borrowed funds (or their own monies released by such borrowings)

to finance the sale of their products to farmers. In other instances, food processors might use some of the above funds to purchase raw materials from farmers and finance the farmer's production expenses as part of the purchasing arrangements. It is not possible from published data to fully identify all these firms or quantify the proportion of the monies they borrow which ultimately were loaned to producers. A number of the firms that would be included in this list would also be included in one of the other categories listed below.

4.2.2 The General Machinery Company (GMC)

The GMC assumes responsibility for distributing tractors produced in Syria as well as imported machinery and other implements. Those sales through and to cooperatives are generally financed by the ACB. However, GMC provides financing arrangements for private farmers. The terms are for five years, at the same rate of interest charged by the ACB. About 75% of the private individuals who purchase tractors do so with a loan from GMC. Since about 85 percent of all tractor sales are to private farmers, the GMC is financing nearly two thirds of all new tractor sales. For 1977, this was approximately 1940 tractors. In addition, GMC finances the sale of selected other large machinery items. The sale of small machines and parts, however, are for cash.

Clearly the financing activity of GMC provides an important and currently needed input of medium-term financing to the private agricultural sector which should not be discontinued unless and until the ACB is prepared to step in vigorously to fill the gap.

4.2.3 Merchants and Processors

From studies of the marketing channels and connections (and confirmed by Dr. Havens' Study of Technological Change in Syrian Villages), it appears that the merchants channel a significant volume of funds into agricultural production. They are particularly important for fruits and vegetables as well as for livestock and livestock products.

A pattern still followed by many fruit and vegetable growers supplying products for the Damascus and Aleppo souks is for the souk merchants to contract either directly with growers or indirectly through a middleman (the damman). In some instances, the arrangement is relatively loose, with the price of the product to be determined as market time approaches. In other cases, the price is determined ahead of time. In the latter case, the farmer has actually sold his crop through a forward contract, thereby shifting future price risk to either the damman or the merchant. In either of the above situations, however, the grower receives advances on his crop to pay for operating expenses, family living and other needs.

Where the money is advanced as a loan, the rate of interest appears to be controlled at 7 percent. If the producer has labor and transportation to deliver his produce to weighing station or to the souk, he gets to supervise the weighing and argue over product quality. However, for small growers further removed from weighing stations, the damman picks up the produce and it is not weighted in the farmer's presence. In a growing

number of instances, the damman buys the product in the field or on the trees and arranges for harvesting crews. As reported by Dr. Havens, this latter practice has become popular in recent years since it permits the working-age males to leave the village during much of the year to work in the Gulf States or near-by large cities, thereby earning considerable money. These wages are generally channelled back into the household and farming operation.

The cooperative appears to be operating quite well in protecting individual farmer interests in this marketing and financing process. The small, private farmer, however, appears to be more vulnerable to discrimination on weights and grades, as well as prices of commodities. Even so, the damman appears to be the person in whom these village farmers have the greatest confidence and on whom they depend to represent their interests in the marketing and pricing process that ends in the souks.

The souk merchants also largely control the market outlet for sheep and goat meat. Hence, it is not surprising to see them heavily involved in financing the livestock industry under a variety of arrangements. In some instances slaughtering and distribution firms make forward contracts with producers for delivery of their product at pre-determined prices. In other instances, merchants invest directly in the purchase of sheep for fattening as a joint venture with producers. In all cases, however, money is advanced to cover the growers operating and family expenses.

Food processors are also involved in financing the production of raw products for their processing plant. A cheese maker in Aleppo, for example, advances money to sheep and goat raisers who, in turn, sell their milk for delivery to his plant. A maker of jams and preserves makes somewhat similar arrangements with growers for their fruit.

Thus, there is a vast array of financial arrangements by which merchants and food processors finance growers. These arrangements enhance economic activity and provide important timing flexibility in the farmers access to needed cash flow. However we found no sound basis for estimating the magnitude of these sources of financing, except to feel strongly that it is much larger than usually acknowledged.

One study currently being conducted by the Farming Systems Division of Icarda involves getting detailed cash-flow data for eight villages over an 18 month period (two crop cycles). This study is scheduled for completion by the end of 1979. When published, it should furnish a more complete insight into the role of merchants in financing producers. Considerable information should also be forthcoming from the farm survey being conducted as a part of the Agricultural Assessment Project.

4.2.4 The Tobacco Monopoly

In their promotion of tobacco production, the Tobacco Monopoly does extensive financing to those farmers in the coastal and mountain areas who grow tobacco. In total, 17.4 million SP were scheduled to be loaned by the Tobacco Monopoly in 1979. This was up sharply from 6.3 million SP in 1978 because of a new development program for burley and flue-cured tobacco production, to which 11.7 million SP were loaned for

building curing barns. These loans were both in-kind and cash, and were for 5 years' maturity.

Short-term loans are all in-kind and include inputs of fertilizer, pesticides, plastic covers for seeding, and spare parts for spray equipment. Medium term loans include: stringing and spraying machinery (given as in-kind advances with three-year maturities), building materials and cash for constructing curing barns (with five-year maturities), and a few other miscellaneous inputs. All of the above loans are made interest free to tobacco growers as an incentive to get them to grow tobacco. The inputs can vary per donum among growers depending on whether the land is irrigated or non-irrigated and on the variety of tobacco produced.

In addition, seed is supplied free of charge to the grower by the Tobacco Monopoly. Moreover, tobacco nursery plants are supplied at cost as an in-kind loan if the seed planting is not successful. The cost of the seed project to the Tobacco Monopoly was 500,000 SP in 1978.

Without question, the Tobacco Monopoly can be an important source of credit for farmers who live in the tobacco growing area of the state, should they choose to grow tobacco. Although the financing is supposed to be only for the production of tobacco, it is clear that these funds and some of the inputs are used to help finance the production of some of the borrowers other crops.

4.2.5 Outside Grants and Loans

A number of special outside grants, development projects and loans are made available to special areas and to special agricultural enterprises as part of programs extended by various nations and international institutions to further agricultural development in Syria. The construction of the large Dam on the Euphrates River and the development of land leveling, draining, pumping stations and water distribution associated therewith are among the larger projects. All these projects inject considerable capital into the Syrian agricultural sector.

One such project focusing on credit is the program of the National Feed Policy Commission Livestock Project Number 1 initiated in 1976. This project is partially funded by the World Bank, to the extent of \$17.1 million, with equal participation from the Syrian government. It is designed to improve the output of sheep production in parts of Syria. Technically, the MAAR is responsible for administering this project. However, the ACB distributes the loans on the recommendation of the MAAR, and collects the loans. The loans are of two types: short-term loans to purchase sheep and supplement feed supply for fattening projects, and medium-term loans for range improvement. Another project relating to sheep is currently in the process of being signed. It is partially supported by funds from West Germany and will focus particularly on sheep marketing. Approximately \$25 million is involved in foreign inflow for this project.

It is likely that sources outside Syria will continue to be a significant source of capital flow into the development of agriculture in the near future. Over the longer run, however, it will be necessary to develop both public and private sources of credit within the Syrian economy to not only meet the needs for increased operating expenses and inputs, but increased funding of medium and long-term inputs, as well.

4.2.6 Self-financing

The picture is not at all clear on the magnitude of self-financing that occurs within Syrian agriculture. Moreover, the opinions expressed by representatives of the ACB and by farmers were sometimes at variance. On the one hand, Branch Managers explained the relatively low percentage of private operators who were borrowing from their branches by stating that these farmers had sufficient of their own money that they did not need to borrow. On the other hand, several private operators indicated that they could materially increase their productivity if they could only get more adequate financing from the ACB.

Data taken from abstracts of the Peasants Union relating to financial resources of cooperatives indicate that for most years, less than 20 percent of the annual acquisitions of goods and services by the cooperative sector were self-financed (see Table 4.18). That is, they were acquired

Table 4.18 Sources of Total Annual Financial Resources for
The Cooperative Sector.

Year	Sources						
	From The Agricultural Cooperative Bank		Self Financed		Other Resources		Total
	1000 SP	Percent	1000 SP	Percent	1000 SP	Percent	
1971	39,967.5	83.0	2,306.6	4.8	5,904.0	12.2	48,178.1
1972	45,157.8	76.8	4,307.0	7.3	9,313.3	15.9	58,778.1
1973	49,534.2	72.4	14,705.6	21.5	4,157.3	6.1	68,397.1
1974	47,163.0	74.9	11,261.2	17.9	4,519.9	7.2	62,944.1
1975	83,536.5	77.8	21,591.9	20.1	2,306.4	2.1	107,436.1
1976	102,322.8	85.9	7,884.7	6.6	8,930.6	7.5	119,138.1
1977	127,837.7	81.2	29,082.4	18.5	419.6	0.3	157,339.7
1978	149,143.9	80.0	32,150.0	17.3	4,035.3	2.3	185,328.2

Source: Unpublished data prepared by Icarda from abstracts of Peasant Union and Reports of Cooperatives.

with funds generated from within each Cooperative System in the form of retained earnings and funds to offset depreciation.

Unfortunately, no data or estimates are available on the amount of self-financing in the private sector. However, the rate of self financing in the private sector is likely somewhat higher than in the cooperative sector. Part of this self-financing likely occurs through "forced" saving. That is, the farmer incurs financial commitment for inputs (both short and medium term) the obligation for which endangers his title to land or his reputation. To avoid losing either, he forces himself and family into a period of living austerity that might jeopardize their nutrition and health, their education or other important social objectives. Moreover, favorable employment opportunities in the Gulf States is providing new sources of off-farm capital that is being reinvested in the farming enterprise in some villages.

Perhaps the studies by Icarda and the PASSA Farm Survey will provide some further insight into both the magnitude of self-financing that is taking place and the extent to which self-financing is competing with social objectives for agriculture such as further education, improved health care and community services. If not, we suggest that this matter be given serious study on two counts. First, to provide more reliable estimates of the amount of self-financing that is occurring in the different sectors and different geographic areas and assess the reasons for these differences. Second, to assess the extent to which different levels of self-financing conflicts with desirable social goals.

4.3 SUMMARY OF FINDINGS AND RECOMMENDATIONS

1. Syrian agriculture has failed to keep pace with the rate of growth experienced by the other major sectors in the Syrian economy since 1970. The volume of loans made by the Agricultural Cooperative Bank (ACB) more than doubled during the 1970-78 period. However, this rate of increase was way below the growth rates for the Commercial Bank and other specialized banks.

2. The impacts of the slower rates of growth in ACB loans has been most noticeable in the private sector, which increased only 52 percent between 1970 and 1978, compared to an increase of 268 percent in the cooperative sector.

We recommend a study to assess the relative marginal productivity of capital added to the private, cooperative, and public sectors. The results of this study could help the High Committee for Agriculture better determine if the present allocation of ACB loans among these sectors is appropriate, given Syrian desire for increased agricultural production.

3. Short-term cash loans to farmers by the ACB have declined sharply relative to other loans by the bank since 1970. Although medium and long-term loans increased significantly, the volume of such loans still falls short of Syria agriculture's need for mechanization.

Most short-term, operating loans have a high payoff to producers. Hence, we question the advisability of the present relative cut-back in short-term loans. While we commend the commitment to increase medium

and long-term loans, we do not feel that such loans should replace short-term loans. Instead, we recommend that the ACB be permitted to discount its intermediate and long-term loans to private as well as to the cooperative sector with the Central Bank as an additional source of medium and long term funds. We also suggest that a long-term educational and promotional program by the ACB to increase bank desposits from the private sector can supply additional funds for medium and long-term lending.

4. Cotton has had preferred access to ACB loans relative to other crops. Although there is a trend away from this favorable position for cotton, non-cotton producers are still at a disadvantage relative to cotton producers in their access to ACB loans. Whether or not this favorable access to ACB financing is warranted by cotton's role in foreign trade should be evaluated.

5. The amount and timing of both in-kind and cash loans are specified in the Annual Decree of Input Requirements published by the High Committee for Agriculture. The details of these needs by crop or livestock enterprise are outlined in Tables 4.12 and 4.13. These quantities are established as national averages for irrigated and non-irrigated zones. They do not vary by soil quality or by differences in management capacity of borrowers. Studies are underway in Syria to better determine differences in productivity responses for different soil types as a basis for varying the fertilizer allocation among soil types. We commend this approach toward increasing the flexibility of input allocation as a means of increasing agriculture. We recommend that study be given to developing relevant criteria for evaluating management capacity of borrowers and for estimating differences in productivity responses from varying fertilizer applications associated with different levels of management capacity. In the absence of such studies, we suggest that varying input (seeds, fertilizers, etc.) allocations according to the previous year's yields would be a shift in the direction of allocating resource inputs to get increased agricultural output.

6. To obtain a crop loan from the ACB a borrower must first obtain a license specifying the amount of each crop to be grown. When the license is approved at the mantika level, the ACB will allocate the in-kind and cash amounts specified in the Annual Decree. On the surface, this system appears to be very flexible. However, a comparison of actual vs. planned hectarages planted suggests that farmers make substantial deviations from the assigned or planned hectarages of non-irrigated crops in response to changing weather conditions. They also appear to make substantial shifts in irrigated hectarages from those planned, in response to changing economic conditions. Attempts to reduce farmers' flexibility to make these adjustments would be counterproductive, given the high degree of weather variability and economic uncertainty under which farmers operate.

7. Rates of interest charged on ACB loans are highly subsidized, being 4.0 percent for cooperatives and 5.5 percent for both public firms and private individuals. The rate to private individuals increases to 7.5 percent for loans exceeding 50,000 SP. Because of these subsidies,

severe limits are placed on the maximum size of loan a branch manager can make to individual borrowers--80,000 SP for short-term and 20,000 SP for medium and long-term loans. These limits apply equally to all branches. We recommend that the size limits be varied among branches according to the needs of the area and the demonstrated credit management skills of the manager and his staff. We suggest as a desired target that each branch manager have a lending authority which will permit the branch to handle 85 percent of loan applications coming to that branch.

Loan requests beyond the branch manager's lending authority are handled by an ACB headquarters committee up to 100,000 SP for short-term loans and 60,000 SP for medium and long-term loans for individuals. Loans beyond these limits must be approved by the Director of the Central Bank. The loan limits for cooperatives are 1 million SP for medium and long-term loans, with approval of the ACB headquarters committee. This limit can be exceeded with the approval of the Director of the Central Bank and the intercession of the Peasants Union.

There appears to be both a mechanism and attitude at the Central Bank as well as at ACB headquarters and at many branches favorable for meeting the loan requirements of larger borrowers. However, a number of larger private operators are not turning to the ACB for financing apparently because they believe its lending programs are too restrictive to meet their needs. We suggest that a program be developed to inform the more productive private operators and cooperatives regarding the flexible lending limits permitted within present policy. One argument against a policy of making more loans available to the larger, more effective producers is that the rates charged by the ACB are highly subsidized. To avoid subsidizing these growers who likely do not need it, we suggest that consideration be given to further increasing interest rates when the loan exceeds some point (say 100,000 or 150,000 SP) to a rate more nearly approximating the free market level.

Serious loan size restrictions currently exist in terms of the maximum loan that can be made for individual crops to a single grower. These maxima are 40,000 SP for cotton, 25,000 SP for cereals and 10,000 SP for other crops. These restrictions seriously constrain farmers in their efforts to mechanize and achieve operating efficiencies. We recommend that the size of loan constraint to a specific crop be eliminated.

8. We were asked to consider and comment on the advisability of transferring the ACB from the Ministry of Economics and Foreign Trade to the MAAR. We recognize some advantages in this transfer. However, we feel that advantages are more than offset by disadvantages and risks to the entire economy. Moreover, we feel that most of the current financing problems are the result of policies and procedures that can be modified within the present arrangement.

9. Although the ACB is the primary source of credit to Syrian farmers, there are a number of other sources:

- Both the Commercial and Industrial Banks make loans to agriculturally related firms, some of which are used to finance the sale of their products to farmers.

- The General Machinery Company (GMC) in its responsibility to distribute tractors and other machinery, finances about two-thirds of all the new farm tractors sold in Syria, plus the sale of other large machinery sales.
- Merchants continue to channel a significant volume of funds into agricultural production. This is particularly true for fruits and vegetables and for livestock and livestock products marketed through the souks in the larger cities. The middleman or "damman" still plays an important role in this marketing and financing process. Similarly, food processors finance the production of much of the raw products for their processing plants.
- The Tobacco Monopoly is an important source of agricultural financing for those farmers who grow tobacco.
- Numerous grants and loans from foreign nations and international institutions have channeled capital into Syrian agriculture. Such outside funds will likely continue to provide a significant capital flow into Syrian agriculture in the near future. Over the longer range, however, Syria will need to develop its own sources of both operating and investment capital.
- Self-financing (retained farm earnings, depreciation and off-farm income) is also an important source of new capital for Syrian farmers. Study should be given to better estimate the magnitude and circumstances of this source of funds. Moreover, study should be given to determine the desirable level of self-financing, in order to insure that "forced" saving and reinvestment in the farm enterprise is not competing with such social objectives as education, improved health care and community services.

Syria: Agricultural Sector Assessment

Volume 4: Agricultural Marketing Annex

CHAPTER V

MARKETING OF FARM INPUTS

By

Clair J. Nixon

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5.0 INTRODUCTION

The availability and price of physical production inputs in a large measure determines the productivity of agriculture. This study analyzes the flow of agricultural inputs within the Syrian agricultural sector. The inputs identified in this report include feed, fertilizer, fuel, insecticides, machinery, seeds and breeding stock. Each of these inputs has been discussed in detail with specific reference to marketing channels, pricing policies, imports, domestic production and storage. Problems associated with the various inputs have also been discussed as well as recommendations for policy alternatives and projects for the next 5-year plan.

Input allocation differences between the three different producing sectors in Syria have been demonstrated. These different producing sectors private, public and cooperative each have a distinct role in providing food and fiber products for domestic consumption and exportation. The allocation processes for the inputs becomes an important aspect in evaluating the relative performances of the input supply sector.

To measure the ability of the farm production sector to meet current and future consumer food demand projections, the capacity of each of these inputs to satisfy the production requirements of the producers must be analyzed. Each of the inputs has been analyzed in detail to discuss the likelihood of producers being able to obtain the necessary inputs in terms of quantity and timing. Recommendations for the more efficient flow of inputs to producers have been made as well as the possible ramifications of not implementing the suggested changes.

The Syrian agricultural sector has great possibilities with proper management and direction. The resources appear to be available if efforts are made to make the most efficient use of them.

5.1 FEED

With the expansion in livestock numbers that has occurred during the past five years, the ability of the feed production sector to provide adequate feed supplies for livestock producers has aroused real concern. Table 5.1 shows the forecast growth in livestock production during the fourth 5-year plan. To support the increasing livestock numbers increased imports of feed materials have been required.

The problems associated with feed scarcity have especially been experienced in the poultry subsector which is currently almost totally dependent on imports to provide its feed requirements. For example, imported yellow corn for poultry feed jumped from 20,000 tons in 1975 to 150,000 tons in 1979. The feed problem is, however, not isolated to the poultry subsector. Other ruminant animal subsectors including cattle, goats and sheep are likewise experiencing problems in meeting existing demand for feed. The focus of this section of the report is, therefore, to discuss the marketing channels and pricing methods of feed distribution as well as provide an analysis of some of the problems in domestic feed production and imports and possible solutions to these problems.

Table 5.1--Forecast Growth of Animal Production During the Fourth 5-Year Plan 1976-1980, 1,000 tons.

Commodity	Base Year					
	1975	1976	1977	1978	1979	1980
Beef meat	17	14	18	22	28	35
Sheep meat	65	70	75	82	89	97
Goat meat	5	5	5	5	5	5
Poultry meat	15.5	15.7	15.8	26	59.5	72
Fish meat	3	5.4	7.2	9.8	11.7	14
Total meat	105.5	110.2	121	144.8	193.2	223
Cow milk	213	296	368	449	516	578
Sheep milk	252	270	288	322	346	374
Goat milk	60	60	60	60	60	60
Total milk	525	626	716	831	922	1022
Eggs, million	521	567	715	890	890	1500

Source: State Planning Commission

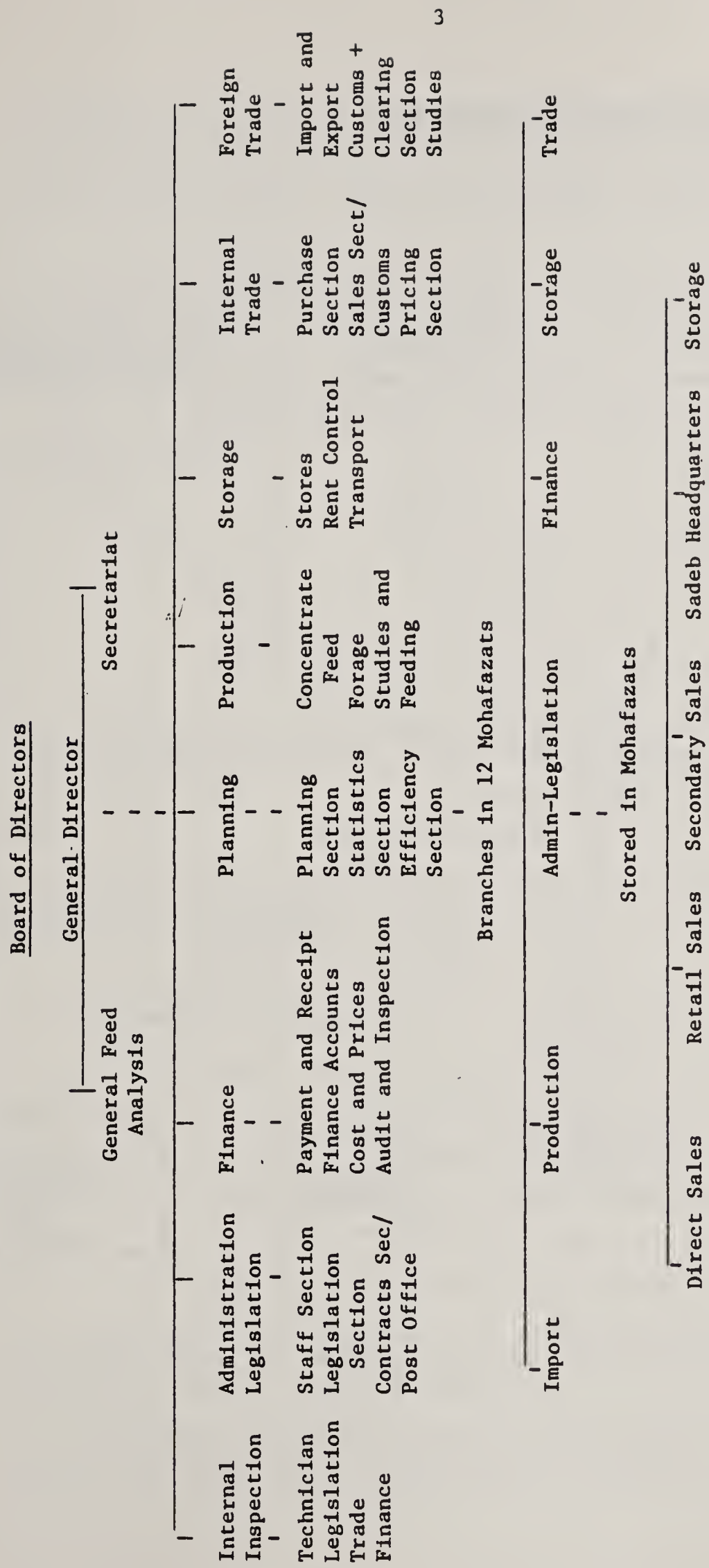
5.1.1 The General Organization for Fodder

The General Organization for Fodder (GOF) was established by Presidential Decree, no. 390, in February, 1974. The organizational structure is shown in Figure 5.1. The broad responsibilities of the GOF in the livestock sector include the establishment and management of livestock feed warehouses, supervision of the marketing of all livestock commodities (both domestic production and imports) and the purchase of all by-products from Syrian agricultural processing industries. The GOF is also responsible for the establishment of an Emergency Feed Reserve as well as its storage and distribution.

The marketing channels of feed inputs to livestock producers is shown in Figure 5.2. Several organizations provide inputs for distribution by the GOF to the various feed using groups. The General Organization for Trade and Processing of Cereals (GOTPC) provides barley, wheat bran and wheat middlings as raw materials for feed production. The Cotton Bureau provides cottonseed cake and cottonseed hulls, while the General Organization of Sugar provides sugar beet cake for use in feed production.

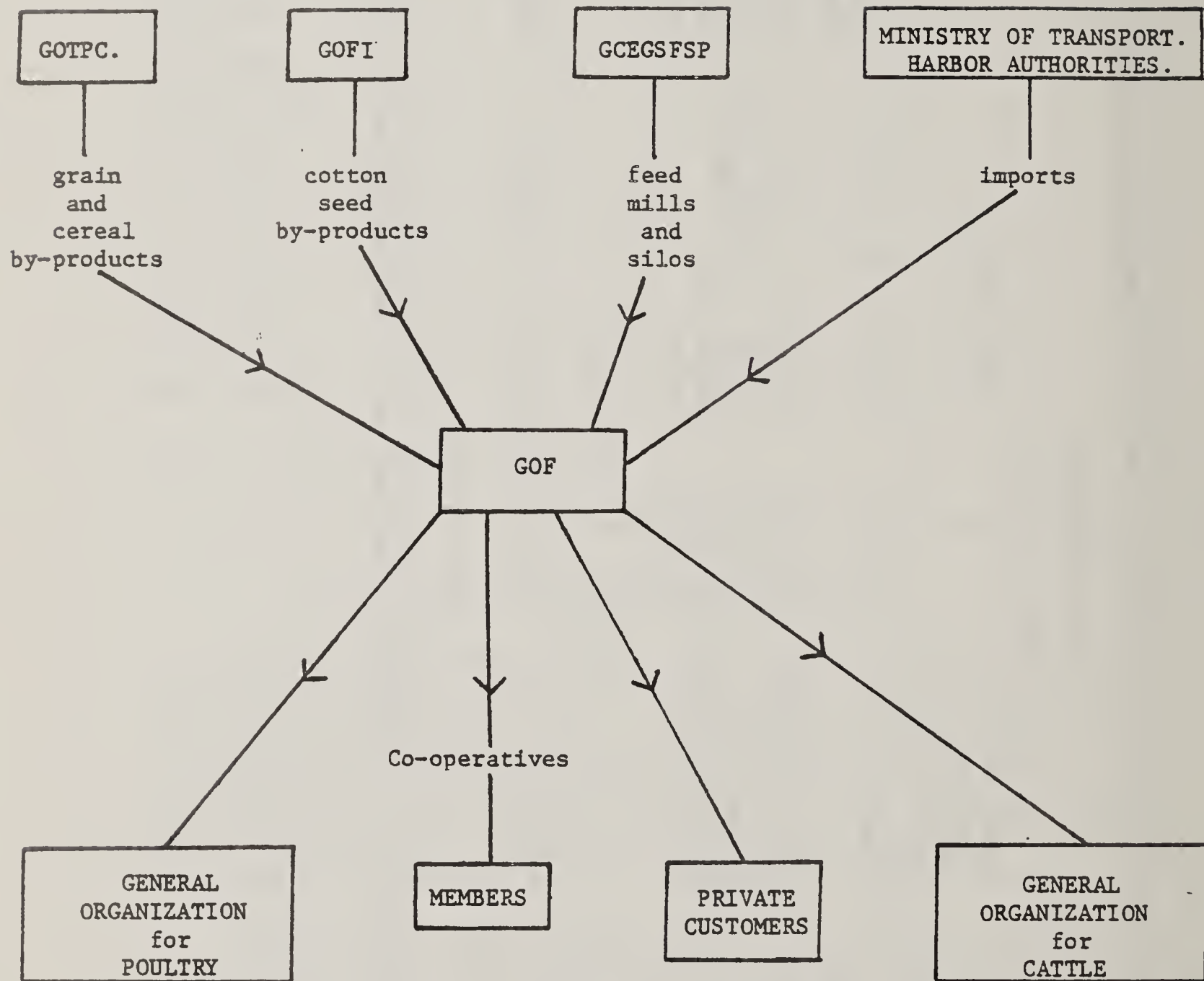
Sales of feed are made on a cash basis directly to private livestock producers, cooperatives and public farms. The cooperatives then

Figure 5.1--Structure and Organization of the General Organization for Feed



(Source: General Organization for Feed 1978)

Figure 5.2. Supply of Feed Materials through GOF.



distribute their feed to their cooperative members. The cooperatives also receive a small discount to encourage their formation throughout the country as well as to encourage the purchase of large feed quantities through the GOF. Public farm purchases through GOF are also allowed fifteen days in which to make payment for feed purchases.

The GOF currently has eighty distributing stores throughout the country with a combined storage capacity of 245,000 tons in sacks. See Annex 5.1 for a listing of individual store location and storage capacity. In the past, this storage capacity has been adequate to provide for the needs of the GOF. However, the demand for feed has increased so rapidly since 1975 that this capacity is no longer adequate. The quantities of feed passing through the GOF since 1975 are shown below:

1975	-	163,000 tons
1976	-	293,000 tons
1977	-	607,000 tons
1978	-	720,000 tons
1979	-	over one million tons (estimated)

To handle this rapid increase in handling of feed commodities, the GOF has required the use of other feed storage facilities - those of the cooperatives.

5.1.2 Cooperatives

The General Union of Peasants (GUP) has overall responsibility for cooperative formation and operation. Figure 5.3 outlines the various branches of responsibility within the GUP.

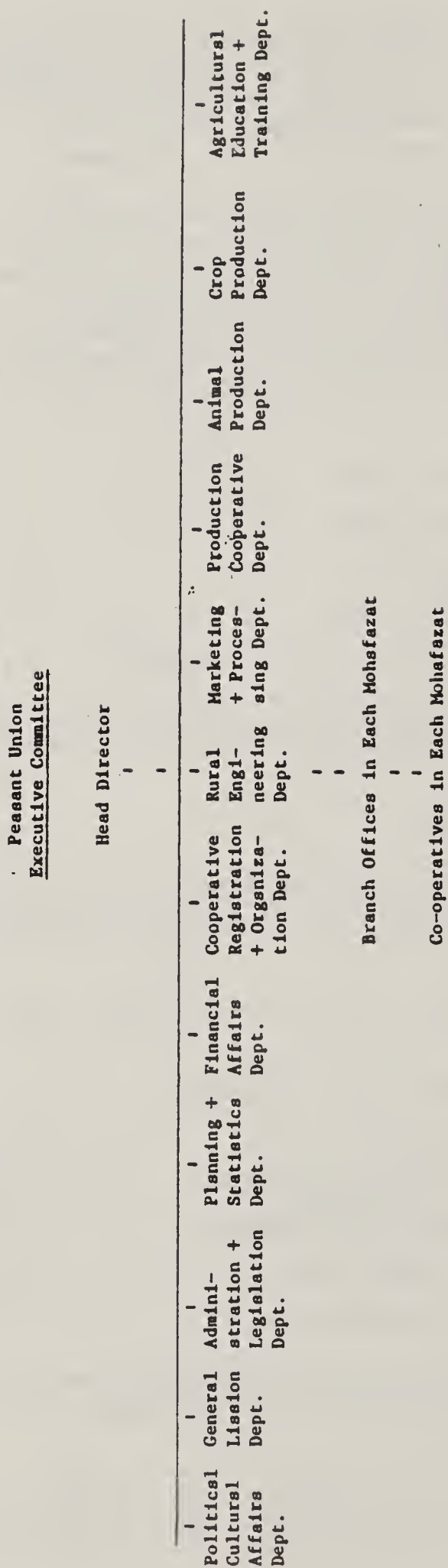
At the beginning of 1979, the following number and types of cooperatives were in operation:

- (1) Sheep - 40 Range Development Cooperatives
48 Fattening Cooperatives
131 Sheep Breeding Cooperatives
- (2) Cattle - 27 Cattle Breeding Cooperatives
2 Fattening Cooperatives
- (3) Poultry - 10 Poultry Cooperatives

The cooperatives at present own 37 stores with a storage capacity of 155,000 tons. A listing of the location and storage capacity of cooperative stores is found in Annex 5.1.

By combining the storage capacity of the GOF with that of the cooperatives there exists 400,000 tons of storage capacity for feed in

Figure 5.3--Structure and Organization of the General Union of the Peasants



(Source: General Union of the Peasants 1978)

the country. The storage facilities themselves are generally in good shape with many of the buildings of recent construction. The management of most stores, however, does not offer the permanence which is important in providing good services to feed customers. This is especially true of the cooperative stores. Management services at many of these stores is part-time and of poor quality. As management is the individual responsibility of each store, no training programs for store management and pest and rodent control have been initiated. Improved management skills would assist in providing better services to feed customers.

Increased use of mechanization in the handling of feed in bags would also increase store efficiency and save on labor. The more bags are handled, especially when using hooks, the more the chance of having bags torn and the contents wasted. Of course, encouragement should be made to producers, especially large livestock producers to adopt their storage facilities to handle bulk deliveries. This kind of system would facilitate faster handling of feed as well as reduce the cost of feed through not using bags.

5.1.3 Emergency Feed Reserve

An important goal of the GOF is the establishment of an Emergency Feed Reserve for the livestock sector. The Emergency Feed Reserve, according to the World Bank Appraisal Document of 1976, indicated that the reserve requirements for 1974 sheep numbers would be 280,000 tons. This reserve is primarily for sheep production as they are the most affected group during low rainfall years. If 8.5 million is an accurate estimate of the current number of sheep, then using the same formula used with 1974 sheep the reserve requirement would have to be increased by 87,000 tons to 367,000 tons of feed. The reserve would have to be stored in the existing GOF and cooperative warehouses where the combined existing storage capacity is 400,000 tons obviously creating a storage capacity problem.

Initially the reserve was to be built out of surpluses being exported each year. However, poor rainfall conditions combined with increasing livestock numbers has placed Syria in the position that it no longer exports, but rather imports to meet its everyday cereal needs. It is unlikely that the reserve will ever be able to be built up through domestic production alone, but instead through the GOF going into the international market to purchase feed over a multi-year period.

When the feed reserve is established increased storage capacity as well as bulk handling facilities will be required. Tower silos, combined with economical flat grain storage, would likely be the most practical method for storing the reserve. Erecting these kinds of facilities, however, requires large capital outlays which have not been forthcoming in the animal feeds sector. Storage facilities like those mentioned above would also be suitable for the annual flow of feed through the GOF to livestock producers.

Fortunately the GOF keeps track of where the available storage in the country exists. Each Mohafazat is required to report unutilized storage capacity weekly to the headquarters in Damascus. This enables the GOF marketing director to allocate and distribute the feed throughout the country according to the storage availability. Of course, additional storage capacity would enable a more efficient allocation of feed by not being so strictly tied to storage limitations. Finally when storage is lacking in all areas, feed must be stored outside which creates losses due to rodents and the weather.

5.1.4 Domestic Feed Production

Domestic production of feed grains is shown in Table 5.2. This feed grain production is supplemented by natural and processed feed production to determine the total domestic feed available to Syrian livestock producers on an annual basis. These feed resources are separated into the following categories for a more detailed analysis.^{1/}

1. Natural vegetation
2. Fallow grazing and crop residues
3. Rainfed fodder crops
4. Irrigated fodder crops
5. Cereals and agricultural industry by-products
6. Compound livestock feeds

Table 5.2--Domestic Production of Feed Grains, 1967-1976

(Metric Ton)			
Year	Barley	Maize	Millet
1967	589,583	8,924	39,488
1968	512,000	7,736	37,377
1969	626,959	8,639	20,535
1970	234,921	7,785	13,525
1971	261,853	8,465	19,431
1972	710,000	14,985	26,506
1973	101,954	15,430	12,535
1974	655,480	19,220	14,203
1975	596,544	26,752	14,480
1976	1,058,711	50,943	15,582

Source: The Annual Agricultural Statistical Abstract 1976

^{1/}These domestic feed production classifications were used by Baillie in his report on livestock feed. Baillie, D.M., "Draft Report to the Ministry of Agriculture and Agrarian Reform, Farmkey Limited, February 1979.

5.1.4.1 Natural Vegetation

Natural vegetation provides livestock producers with an important source of feed. Presently only a small portion of the natural grazing areas are individually owned so that this feed resource is essentially free to all who use it. The natural grazing areas within Syria can be divided into three distinct types:

1. The Steppe. This area is characterized by low rainfall, under 200mm annually, and occupies approximately 8.5 million hectares.
2. The mountains of Western Syria. This area lies within higher rainfall zones, but is too steep for cultivation. Mountain grazing provides a further 3.2 million hectares of grazing land.
3. Unutilized potentially cultivatable land. This area accounts for 355,000 hectares. As most of this land occurs either within or on the fringes of the Steppe area, its use is generally considered to be similar to that of the Steppe.

All three types of natural grazing continue to be fully exploited. As grazing is essentially free and water is no longer such a limiting factor, current market price levels make the grazing of sheep an important way to reduce overall production costs. However, with the increased number of sheep over the past four years the grazing pressure on the Steppe has created a condition where Steppe management is necessary in order to preserve this natural source of feed. The resiliency of the Steppe to revitalize itself is in danger if proper range management is not exercised to avoid overgrazing.

Plant destruction and grazing pressure can be attributed to the following factors:

1. Animal numbers have increased at a surprisingly fast rate.
2. Weather conditions have been quite unfavorable during the past three years. The lack of rainfall has made the vegetation available on the Steppe overused.
3. Plowing in marginal rainfall areas thereby destroying the natural vegetation. Although this practice was outlawed in 1970, full compliance has not been adopted.
4. Uprooting of plants to produce domestic fuel for migrant families has depleted the feed supply. Attempts have been made to alleviate this problem by providing alternative sources of fuel to migrant families including kerosene. However, uprooting is still a problem.
5. The problem of overgrazing is systemically killing many scrubs and perennial grasses and legumes. The result is

not only a loss of feed, but without protective covering to the soil, wind and water erosion have intensified to the further destruction of the Steppe. To somewhat alleviate the over grazing problem a Cooperative Range Development program has been instituted. Its purpose is to allocate specific areas of the Steppe to individual Cooperatives for controlled grazing programs. Nearly 25 percent of the Steppe is now controlled by these Cooperatives. The plan is to continue to increase the percentage to help keep the Steppe a bountiful source of feed.

5.1.4.2 Fallow Grazing and Crop Residues

Fallowed areas in rainfed-cropping zones and crop residues provide an important source of grazing during the summer months. Grazing rights are purchased from the landowner according to the amount of fodder there exists on the land. Generally, most of the fallow grazing and crop residues are used up before the Steppe is ready to be grazed again in the fall. This creates a situation where ample feed concentrates are needed to avoid overgrazing.

Declining numbers of fallow crop areas are also lessening this source of feed. Many farmers are instead changing their crop rotations to avoid letting the land lie fallow for either one or two years. Instead of letting nearly 1.6 million hectares lie fallow each year, this land could be used for forage production. Forage production would provide protection to the soil and would conserve rainfall because the soil would not need to be resown each year.

5.1.4.3 Rainfed Fodder Crops

The Fourth 5-Year Plan proposed that fodder production should dramatically increase to help offset the need for feed imports. In 1976, a team from Washington State University, carried out a study of the crop production and livestock feed supply possibilities. They identified reasons why farmers had not begun to raise more hay. These included poor returns on the crop, high transportation costs and additional machinery requirements for efficient hay production.

The nutritional requirements of the livestock sector, especially dairy cows, requires that more forage production is needed to supplement the use of feed concentrates. Encouragement by the GOF and the General Organization for Cattle (GOC) should be used to increase the amount of rainfed and irrigated forage crop production. It may be necessary for the prices of forage crops to be increased to provide the incentive for farmers to increase production. Special loans on forage equipment would also assist in enabling farmers to switch from other crops to forage production.

5.1.4.4 Irrigated Fodder Crops

Irrigated fodder crop production would again alleviate some of the need for feed imports. Green fodder production is especially suitable

to Syria because of its climate. Hay production could be a profitable crop because it only needs to be resown every four years thus reducing annual operating costs and increasing profits. It is also likely that between eight and ten cuttings would be available in some areas. There has been reluctance, however, on the part of the farmer to consider fodder production until they are convinced of its profitability and adaptability in their cropping scheme. This is where effective extension training could pay off by demonstrating the profitability of fodder production to the farmer. Another problem is the high degree of mechanization required for efficient hay production. Without proper machinery, fodder production would be extremely labor intensive and thus unprofitable. Therefore, increased hay production by small farmers is doubtful unless cooperatives can provide the needed machinery services.

5.1.4.5 Cereals and Agricultural Industry Crop By-Products

Cereals and agricultural industry crop by-products provide the most important source internal livestock feed resource after natural vegetation. The major cereal feed produced in Syria is barley. Wide fluctuations in barley production, as evidenced in Table 5.2, are the result of variable rainfall years.

Maize production has become the second most important domestically produced feed behind barley. Although domestic production in 1977 was 58,700 tons, the rapid increase in demand for maize resulted in a need to import an additional 70,000 tons during the year.

Cotton by-products including cottonseed cake and cottonseed hulls are an important component in feed concentrates. Exports of these two products are now prohibited due to insufficient domestic supplies.

The wheat milling industry produces both wheat bran and wheat middlings which are used as livestock feed. Domestic supply of wheat bran has not been sufficient to meet the increasing demand. As a result, many rations requiring wheat bran find substitutes in other commodities not providing the same nutritional benefits.

5.1.4.6 Compounded Livestock Feeds

Compounded livestock feeds are supplied through both domestic production and imports. These feeds are a mixture of processed feeds and concentrates requiring mixing with cereals or forages before feeding.

At present there are two modern feed plants being operated by the General Organization for the Exploitation of Grain Silos and Feed and Seed Plants. Technical responsibility for the formulation of the feeds produced lies with the GOF which supplies the raw materials for processing.

The production capacity of these plants is nearly 91,200 tons for the Aleppo plant and 45,600 tons for the Hama plant on an annual basis.

The actual production of these two feed mills is considerably below their rated productive capacity. The Aleppo plant produced only 20,974 tons of compounded feeds in 1977 using two shifts. The Hama plant was only in operation for the last five months of 1977 during which time it produced 10,200 tons of compound feed using one shift. The unutilized production capacity is very costly in terms of the high capital investment in modern feed plants such as these.

Although private companies are currently prohibited from milling and mixing ruminant feeds, 32 licensed poultry feed mill/mixing stations were in operation at the end of 1978. These private poultry mills are generally located in Western Syria and have a combined milling capacity of 140,000 tons annually.

In 1976 the commercial requirements for feed concentrates and ingredients amounted to about 470,000 tons. It has been forecast that by 1985, the corresponding requirements will have increased to 795,000 tons, due in part to the rapidly increasing poultry sector (Table 5.3).

Table 5.3--Forecast Animal Production and Calculated Requirements of Commercial Formula Feeds 1985, tons.

Commodity	Animal Growth Rate	1985 Requirements of Formula Feeds
Beef meat	5%	67500
Sheep meat	5%	207000
Goat meat	\pm 0%	13800
Poultry meat	10%	99000
Fish meat	10%	14000
Cow milk	5%	95200
Sheep milk	\pm 0%	57100
Goat milk	\pm 0%	14400
Eggs, million	10%	226875
Total	-	794875

Source: Agriconsult AB, (1978) Feed Plant Feasibility Study Final Report MPR. Ministry of Public Works Syria.

By combining the private feed mixing stations' present capacity of 140,000 tons per annum with the Aleppo and Hama mills annual production capacity of 120,000 tons and then adding the estimated ingredients consumption by 1985 of 250,000 tons per annum, the realistic milling capacity for 1985 consumption is some 285,000 tons annually below projected demand.

The additional feed milling capacity required of 285,000 tons per annum will require that additional feed mills be built. In a report prepared by Agriconsult, it is suggested that the milling capacity be increased by building four additional milling plants (Annex 5.1). With the addition of these four plants, the milling requirements of the livestock sector would be met through 1985. Of course, deviations from the projections, in terms of livestock numbers increasing faster than the projections, would increase the demand for additional milling capacity. Again, this is maximum milling capacity. Thus far, especially in the cases of the Aleppo and Hama mills, the plants have operated at well below their productive capacity. These plants and all others will have to operate at high levels of capacity utilization in order to supply the livestock industry with its milled feed requirements.

Finally, the level of domestic forage production is an important factor in determining the demand for formula feeds. The seasonal variation in forage production makes formula feed demand estimations difficult. It is unlikely, however, that substantial increases in irrigated and rainfed forage production will be realized in the near future given the constraints previously mentioned.

5.1.5 Distribution of Feed

In distributing feed throughout the country there is the need for adequate storage facilities. The total storage capacity by the GOF and the cooperatives is 400,000 tons. Currently there is insufficient capacity to meet the needs for efficient annual flow of feed to livestock producers. There are several factors which have a direct bearing on the feed distribution program that can be implemented in the country. Four factors are listed below which appear to be the problems encountered in making a cohesive feed distribution program.

1. Livestock feed from internal sources is limited by the supply of cereals and agriculture industry crop by-products. The variability in cereals production creates bottlenecks in providing adequate feed supplies. This is especially true in the absence of adequate feed reserves for use during poor rainfall years.
2. Although natural vegetation comprises 65 percent of land usage in Syria, mismanagement through overgrazing or by other factors is significantly lowering its overall productivity each year. The result is that the natural vegetation will be able to support fewer and fewer sheep and the difference in feed requirements will have to be made up through either increased domestic production or imports.
3. The present market situation favors the production of high value cash crops instead of fodder crops. Before fodder crop production can be expected to increase the returns must be competitive with other cash crops.

4. The lack of a positively based extension program complete with technical training support has not enabled advanced production information to be disseminated to producers. Such a program would greatly aid in the more efficient utilization of existing resources and increase the quality of livestock products.

5.1.6 Imports

Most feed imports come through the two ports at Tartous and Latakia. Approximately 60 percent of the feed flows through Tartous and the remaining 40 percent through Latakia. The quantities of imports of feedstuffs keeps rising due to increases in livestock numbers. Poor cereal harvests over the past three years have also created the need for additional imports to supplement domestic supplies. Most of the imports are raw feed materials which are mixed locally to form superconcentrates. Only a small quantity of superconcentrates are imported.

The demand for poultry feed has been the major factor in increasing the level of imports. Since 1974, several large commercial producers have emerged as well as large scale cooperative and state projects. In 1974, the national flock consisted of 5.4 million birds. By the end of 1977, the General Organization of Poultry (GOP) estimated the flock to be about 10.1 million. Unofficial estimates using the level of recorded feed use for 1978, indicated the flock had increased to over 11 million birds. The use of feed has correspondingly increased and will likely continue to climb at its current 14 to 15 percent annual rate.

The GOF faces many problems in the distribution of feed from importer to livestock producer. The main problem at the ports is the inadequacy of present unloading facilities. Each ship that comes into port is loaded with anywhere from 10,000 to 25,000 tons of feed in bulk form. Laborers then go down into the holds and begin loading the bulk feed into bags, because there are no bulk discharging facilities at the ports. The bagging process is time consuming and labor intensive which results in increased labor costs to the GOF as well as increased demurrage for not unloading the ships fast enough.

Although the unloading situation at the ports has improved since 1975 (it sometimes took up to 100 days from the time the ship entered the port before it was unloaded) there are still long delays in ships having access to the docks. The port authorities need to expand the port docking facilities so that increased ship traffic can be handled in an efficient manner avoiding costly delays.

Another related problem at the docks is labor. The port company which employs and directs all labor activities on the docks is a monopoly and decides how many crews will be made available for unloading each ship. Often there are not enough crews allocated to unload a ship and thus delays in unloading occur. Delays in unloading result in fines to the GOF which, in turn, increase the cost of feed.

Bulk handling facilities at the ports would increase the efficiency of feed discharging. These bulk handling facilities would enable ships to be unloaded quickly and avoid the high cost of labor in filling bags for shipment. Even though new silos have been built to handle bulk deliveries, the feed still has to be bagged before it can be discharged from the ship. Therefore, these new silo bulk facilities currently go unutilized.

Private truckers are then contracted with to deliver the feed from the docks to the GOF storehouses throughout the country. The GOF often has a difficult time getting enough trucks to handle the distribution of feed because the private truckers have fewer delays in loading and better pay when hauling for private companies. In addition, when there is a lack of feed storage in one area the feed ends up being deposited in warehouses far from the intended destination which creates shortages in some areas and excesses in others.

A problem with imported feedstuffs is that they have to be inspected before they are allowed to be discharged. The inspection is to determine whether or not the quality of the feed meets the standards set forth in the contract between the GOF and the importer. The current method of determining the acceptableness of any feedstuffs or forage is inadequate. Although a new laboratory was opened in Damascus for the evaluation of feed quality, the delivery and analysis is time consuming and sometimes delays unloading of ships. Samples are taken from the ships after they arrive in port and delivered to Damascus for analysis after which notice of approval or disapproval is sent back to the GOF at the ports. To avoid this problem it is suggested that trained inspectors with proper laboratory facilities at the ports be created for the rapid evaluation of imported feed. This would assist in efficient dispersion of feed to the GOF warehouses.

Transport of feed grain from the field after harvest also has some difficulties. Most grain combines are equipped for the bagging of grain which requires several workers to sew the sacks, load and transport the grain to the field boundary for further shipment to silos and storage depots. These combines could be easily converted to bulk handling and increase the efficiency of transportation to the silos. The combine when equipped with bulk discharging facilities would empty its grain directly into either trucks or tractor-trailer units on the field for direct delivery to collection points or silos. The silos could then utilize their bulk unloading facilities. Presently, all of the grain that arrives in bags is opened and then loaded into the silos. However, there are still many warehouses that are only equipped to handle feed and cereals in bags and until they are changed the feed will have to be shipped in bags.

The use of bulk handling facilities would enable feed grain production costs in the long-run to be reduced because of reductions in labor needs and the cost of using bags. These kinds of cost savings would increase the profits and likely production of livestock feeds to the producer.

5.1.7 Feed Price Policy

A new feed price policy was instigated by the GOF at the beginning of 1979. The new policy is to sell livestock feed to producers at cost. The price of the feed is set by the GOF and is the same for all parts of the country. No differences in price are allowed for varying transportation costs. The cost of the feed is determined according to whether the feed is imported or domestically produced. For domestic production, the General Organization for Trade and Processing of Cereals (GOTPC) buys the cereal production from the Syrian farmers at a fixed price which is determined annually by the Supreme Council of Agriculture. The GOTPC then transports the cereals directly to the GOF warehouses and charges the GOF a 5 percent handling fee for its involvement. The cereals are then either sent directly to the mills for mixing or sold to the livestock producer. Many large livestock producers have their own mixing facilities so they purchase the raw materials from the GOF. The GOF charges 40 SP/ton plus a 7 percent service charge for handling the feed. The 7 percent charge is to cover insurance, damages, losses and a 2 percent profit margin while the 40 SP/ton is the marketing and handling costs. Cereals sent to the milling and mixing stations have an additional 9 percent milling charge assessed by the private stations and then are sold to the livestock producers.

Subsidies on domestic production are now only provided on wheat bran and wheat middlings. All other subsidies on feed products have been discontinued as of the beginning of 1979. The subsidy on wheat products creates a problem, however, as farmers find it cheaper to feed their livestock the subsidized bread, intended for human consumption, instead of regular animal feed products. This situation again makes it difficult for the GOF to estimate the livestock feed needs.

For imported feedstuffs the GOF adds 18 SP/ton plus 15 percent for administrative costs to the cost of the feed on the dock. The marketing costs are the same as that of domestic production except that the feed goes directly to the GOF and by-passes the GOTPC.

5.1.8 Recommendations

The general conclusion to the points raised in this section of the report is that feed availability is now the most serious problem facing the livestock sector. As the livestock numbers continue to climb the demand for feed will likewise increase. To support this increase in demand either domestic production must increase or imports must be increased. To ease this problem some steps need to be taken.

(1) An intensive production program can be undertaken to increase domestic production of feed. This program would especially emphasize increasing the acreage of green fodder production. Price incentives would increase profitability to farmers to switch from other cash crops to fodder production. Increased fodder production would ease some of the pressure on imported feedstuffs.

(2) It would also be advantageous for crop producers to increase their production of maize due to a rapidly expanding poultry sector. There is a ready market for all of the maize that can be grown. In addition, it would assist in lowering Syria's dependence on imports of yellow corn.

(3) Immediate action needs to be taken to alleviate the bottlenecks that exist at the ports. Efficient bulk handling facilities would enable the imported feedstuffs to be delivered at a lower cost to the livestock producer. In addition, the increased costs due to delays in unloading the feed would be greatly diminished.

(4) An extension training program to assist livestock producers in the more efficient use of their livestock feed would increase quality as well as save on overall feed costs to the producer. In conjunction with this, a Steppe management program to preserve the valuable natural vegetation is essential if this valuable resource is going to continue to serve Syrian livestock producers.

(5) Increased storage capacity in all areas of the country should be initiated to alleviate the problems that now exist in both storage and proper distribution of feedstuffs. In addition, if an Emergency Feed Reserve is to become a reality then the capacity of the storage facilities will have to be expanded.

(6) Machinery loans should be made available to farmers who plan on growing fodder crops. These loans might be subsidized to stimulate machinery purchases and thus increase fodder production.

The above recommendation as well as others contained in this report are suggested to help ease some of the bottlenecks that currently exist in the feed livestock sector. Some progress is being made in all of these areas, however, much more is needed if Syria is to succeed in its goal to become self-sufficient in livestock feed production.

5.2 FERTILIZER

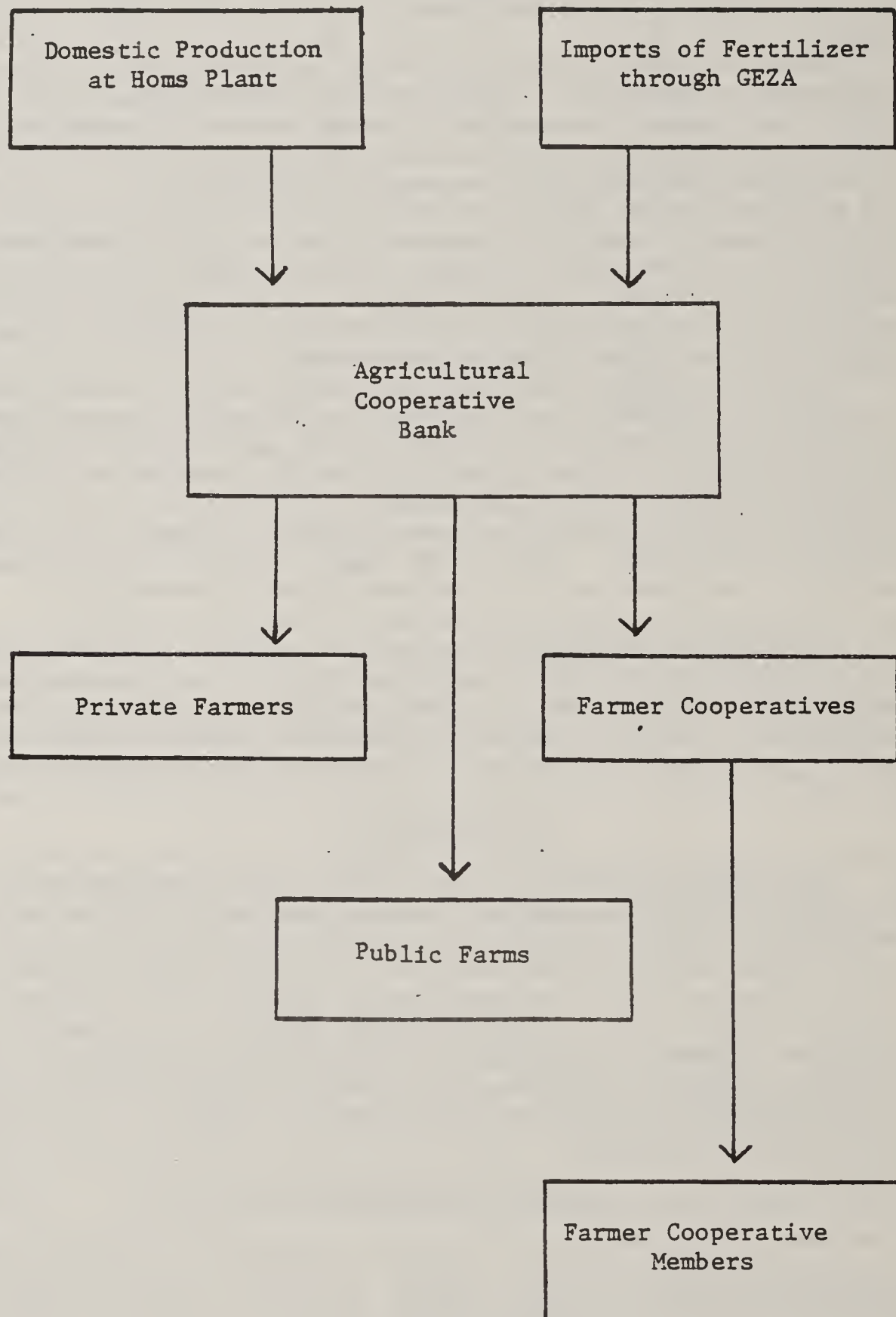
The demand for fertilizer by Syrian agricultural producers has increased dramatically during the past five years. Table 5.4 shows, for example, that during this period phosphate fertilizer use quadrupled and nitrogen fertilizer use doubled. With such rapid increases in fertilizer consumption it is important to analyze the channeling of this input from both domestic production and imports to the agricultural producer. Figure 5.3 shows how the fertilizer is marketed to the agricultural producer. Possible constraints in the input flow system must be identified as well as the ability of the system to cope with projected increases over time.

Table 5.4--Syrian Fertilizer Consumption 1974-1978

Type of Fertilizer	1974	1975	1976	1977	1978
(fertility units, tons)					
Nitrogen	33,257	37,671	47,198	51,919	62,135
Phosphate	7,471	13,440	21,638	24,692	30,990
Potassium	1,797	1,576	1,613	1,352	1,802

Source: Ministry of Industry

Figure 5.3. The Flows of Fertilizer to Syrian Agricultural Producers.



The Agricultural Cooperative Bank (ACB) is responsible for the storage and distribution of all chemical fertilizers used in Syrian agriculture. The High Committee on Agriculture provides the ACB with an estimate of the fertilizer needs, by type, for the coming year. Projections of fertilizer consumption are contained in each 5-year plan as well as each annual plan. The ACB adds 20% to the annual estimate provided by the High Committee of Agriculture so that sufficient stocks are available if the weather makes additional fertilizer application profitable.

5.2.1 Imports

To determine the amount of fertilizer that must be imported, the ACB first estimates the current stocks in its warehouses throughout the country. Next, domestic fertilizer production is estimated for the coming year. By subtracting both current stocks and estimated domestic production from the ACB's estimate of national fertilizer needs, the level of imports can be determined. Once the level of imports for the year have been estimated, the ACB notifies its importing agent, The General Foreign Trade Organization for Chemicals and Foodstuffs (GEZA - Arabic for feeding stuffs) of the quantity and types of fertilizer that will need to be imported during the coming year. GEZA then puts out international tenders for the fertilizer. The low bidder receives a license from GEZA to import fertilizer into Syria. Import levels then vary from year to year depending on carry-over stocks and rainfall conditions.

Fertilizer imports by GEZA in 1978 were the following:

Type	Tons	Active Ingredients
Ammonia Nitrate	90,000	33 percent
Urea	25,000	46 percent
Ammonia Sulfate	10,000	21 percent
Ammonia Phosphate	75,000	18 - 46 percent
TSP	55,000	46 percent
Potassium Sulfate	5,000	50 percent

5.2.2 Distribution

Most of the imported fertilizer comes via ship through the two ports at Tartous and Latakia. At present, all fertilizer is imported in bags. GEZA notifies the ACB of the approximate arrival date of the imported fertilizer as well as the quantity. The ACB then arranges for private trucks to go to the ports and pick up the fertilizer being unloaded from the ships. The trucks then deliver the fertilizer to some 59 branch warehouses in the ACB system. The warehouses are both owned and rented by the ACB. The fertilizer is then distributed to farmers on either a cash or in-kind basis. The private farmer goes directly to

the ACB for his fertilizer while the cooperative members' fertilizer is distributed to him by his local cooperative.

5.2.2.1 Bottlenecks in Distribution

One bottleneck in fertilizer distribution is incurred by not getting the fertilizer ship unloaded quickly. GEZA reports that the unloading facilities at the ports are inadequate to handle the volume of goods flowing through them. At present, neither of the ports, have bulk unloading facilities for fertilizer requiring all fertilizer to be shipped in bags. The handling of the bags in the holds of the ships is time consuming adding additional costs to the price of fertilizer.

Imports of bulk fertilizers have been attempted. Without the proper unloading facilities, however, it required men to go down into the hulls of the ships and bag the fertilizer before it could be discharged. The additional labor costs, plus costs incurred because of delays make this approach infeasible.

GEZA also attempted to purchase bulk handling facilities but found that they were too expensive, so the project was dropped. It is unfortunate that this type of project failed because of its need at the ports. Representatives of GEZA indicated that it is likely the project will be revived again as the demand for fertilizer continues to increase.

Once the bags are unloaded from the ships they are handloaded onto trucks for delivery to ACB warehouses. Labor to handle the unloading and reloading is provided by the port authority. All work on the docks must be handled with port authority laborers. Sometimes not enough men are allocated to unload a ship and thus delays are encountered in getting the fertilizer to the ACB warehouses. Since all ships carrying fertilizer are chartered by GEZA, delays in unloading result in demurrage charges to the ship owners. Since these costs are passed on, the result is increased fertilizer costs to the agricultural producer.

To alleviate this problem bulk handling facilities at the ports should be built. Two major savings would occur through bulk handling. First, the labor requirements for unloading the ships and loading the trucks would be less. Second, there would not be a charge for bags used in transporting the fertilizer. However, before bulk facilities at the ports can be fully utilized, the ACB must be capable of accepting bulk fertilizers.

To accomplish this the ACB must be willing to invest in bulk handling equipment at its warehouses and provide for the distribution of the bulk fertilizers to farmers. A pilot program involving the adoption of bulk handling facilities at one ACB warehouse could test the cost saving potential of this kind of system.

The Syrian government has been hesitant to build bulk facilities because of their anticipated ability to export fertilizer in the future.

However, if fertilizer exports do become a reality then the need for bulk handling facilities at the ports will still be great. Many countries wishing to purchase fertilizers want to receive them in bulk to avoid the added cost of having the fertilizers bagged. Therefore, to compete in the international market Syrian fertilizers must be able to be shipped both in bags and in bulk.

Another bottleneck in fertilizer distribution is the lack of trucks available at certain periods of the year. For example, at harvest most of the trucks are handling grain, etc. and are not available to pick up the fertilizer at the ports. Increased storage capacity would enable the fertilizer to be imported during periods of slack demand for trucks and thus avoid transportation bottlenecks at harvest time.

5.2.2.2 Fertilizer Allocation

In order to receive fertilizer from the ACB on an in-kind basis, the farmer, whether a member of a cooperative or private, must present a license issued by the government designating the amount of fertilizer allotted to his crops for the year. The amount of fertilizer needed is calculated on the following factors: (1) type of crop, (2) size of planting, and (3) whether irrigated or rainfed. At present, in-kind fertilizer credit is not allocated for non-irrigated areas (stabilization areas two, three and four i.e., where the rainfall is less than 300 millimeters per year). Fertilizer is then distributed to farmers on a need basis. In other words, the farmer only gets enough in-kind fertilizer to put on each crop as it is needed. This is to avoid farmers putting too much fertilizer on one crop and not enough on another according to the plan.

Fertilizer applied to non-irrigated land must be paid for in cash. The government has several pilot studies going on to determine the feasibility of fertilizer use in the non-irrigated portions of Syria. Until recommendations are made to change the current policy, the ACB will continue to discourage the use of fertilizer on these marginal rainfall areas by requiring cash payment. Some experimental fields are being set up to determine the possible advantage of using fertilizer on marginal lands. If the experimental fields prove successful, it is likely that the ACB will alter its policy by allowing in-kind fertilizer loans on marginal rainfed lands.

5.2.3 Storage

The ACB stores its fertilizer in both owned and rented warehouses. The total storage capacity of these warehouses is approximately 200,000 tons in sacks. The ACB has recognized that this level of storage capacity is not adequate at present and certainly not in the future if fertilizer demand continues to increase at its present rate. Therefore, the ACB has undertaken a storage building program that will increase their storage capacity to 300,000 tons and will be wholly owned by the ACB.

The absence of adequate storage capacity for fertilizer has resulted in imported fertilizers often being delivered to warehouses with available space instead of being taken to the warehouse it was designated for. This process creates misallocations with excesses of certain fertilizers in some areas and deficiencies in others. The planned increase in storage capacity will help alleviate this problem in the short run. If fertilizer demand continues to climb however, even a 300,000 ton storage capacity will not be sufficient to provide for proper storage and allocation of fertilizer.

5.2.4 Domestic Production

Although most of the fertilizer used in Syria is imported, there is one domestic fertilizer plant in operation. The plant, located near Homs, produces calcium nitrate consisting of 26 percent nitrogen. Production levels at the Homs plant which began in 1972 are shown below:

1972	-	56,000 tons
1973 ^{1/}	-	33,000 tons
1974	-	53,000 tons
1975	-	86,000 tons
1976	-	81,800 tons
1977	-	84,800 tons
1978	-	80,000 tons

Source: Statistical Abstract 1978.

5.2.4.1 Production Bottlenecks

The productive capacity of the Homs plant is estimated to be 117,000 tons per year. Initially, the design capacity of the plant was rated to be 142,000 tons per year, however, the plant design was not coordinated with steam and power supplies so that current attainable capacity is 117,000 tons per year.^{2/} According to production engineers at the plant, the difference between actual production and production capacity is the result of technical difficulties. The technical difficulties most often

^{1/} During the 1973 war the power factory was bombed stopping production at the fertilizer plant for several months.

^{2/} The design of the fertilizer plant was outdated when construction began. The current system does not allow the throughput of sufficient quantities of steam to keep the amount of ammonia gas in the design up to correct temperature. Therefore, in order to keep the temperature at the level needed to produce fertilizer, the amount of ammonia gas produced is reduced and, in turn, the fertilizer capacity is reduced.

encountered are the following:

1. Failure in electrical power. Reductions or loss of power in nitrogen production causes the ammonia gas to drop in temperature and requires that production be stopped until the gas can be brought back up to the proper temperature. Even power losses of just a few seconds reduces the temperature of the ammonia gas enough that it begins to change its form. If the temperature drops below 200 degrees Centigrade the delay may take up to 10 hours. It is estimated that about 20 power shortages occur each year accounting for several days of lost production.
2. Unavailability of adequate steam supply. The power company which operates its plant next to the fertilizer plant provides the steam for fertilizer production. The problem is that the power company often does not generate enough steam to keep the fertilizer plant operating at its normal level of production. The effect is that the fertilizer plant has to reduce its output according to the amount of steam being provided by the power company.
3. Lack of cooling water. Vast amounts of cooling water are required in fertilizer production because of the high temperatures involved. The engineers indicated that many times each month the cooling water capacity of the plant is insufficient to keep production up to its standard production level. When this happens either production is reduced or the plant is shut down.

The result of the above technical difficulties is that the fertilizer plants' capacity utilization rate is not high averaging only 72 percent during the past four years. The capacity utilization rate is found by dividing actual production by attainable production capacity. With the need for fertilizer in Syria, the Homs plant should be operating at a much higher capacity utilization rate. By eliminating some of the technical problems outlined above, the Homs plant should be able to raise its capacity utilization rate considerably. The result would be increased output at little increase in costs.

5.2.4.2 Storage Capacity

Storage capacity at the Homs plant is enough for about 40 days of production. The engineers indicated that there is a safety hazard in storing large quantities of nitrogen fertilizer. The contents of nitrogen fertilizer are such that it may be volatile and storing small quantities is deemed safer.

5.2.4.3 New Fertilizer Production Projects

Although domestic production of nitrogen fertilizer has provided some relief in satisfying the agricultural producer's needs, it has not been great enough to satisfy the total demand. For this reason two other fertilizer projects are currently under construction near Homs.

The first is a urea fertilizer plant with a production capacity of nearly 300,000 tons per year. This facility is being built under contract with a French company at an estimated cost of one billion Syrian pounds and is expected to begin production by the beginning of 1980. However, it is likely that the urea plant will take at least two years before it reaches a high level of capacity utilization. With the production of urea, Syria should be able to meet all of its domestic nitrogen needs with surplus to export.

A major problem exists, however, in the economics of production at the urea plant. When the contracts for construction of the plant were made it was estimated that the cost of naphtha (petroleum product used in fertilizer production) to be about 15 SP to produce 140 SP worth of fertilizer. Since construction began the price of petroleum products has soared so that the same amount of naphtha today costs about 300 SP to produce the same amount of fertilizer. Therefore, it may be cheaper for Syria to export their petroleum products and import their fertilizer needs.

To counteract the problem of using naphtha in the production of urea there is the possibility that the plant can be converted to using natural gas. It is estimated that using natural gas would lower the costs of production sufficiently to enable the fertilizer price to be competitive in the international market. However, the cost of obtaining natural gas makes its use uneconomic. The source of the natural gas is some 560 kilometers from Homs and as of yet no definite plans for natural gas production has been initiated.

The other project to produce fertilizer is a Triple SuperPhosphate (TSP) plant being constructed near Homs. The cost of the TSP plant being built by a Romanian company is estimated to be 850 million SP. The TSP plant has a design capacity of 450,000 tons of phosphate fertilizer each year with production expected to begin by the end of 1979. By the end of 1980 it is estimated that the plant will be operating at 65 percent of its productive capacity. Production engineers are optimistic that the TSP plant will be able to operate at a high capacity utilization rate.

The TSP plant will, when operating at full capacity, use a maximum of 800,000 tons of domestically mined phosphate rock each year. When the phosphate fertilizer plant is operating at full capacity it is estimated that rock exports will be about 1.2 million tons per year.

The TSP plant faces some major problems, however, in producing fertilizer. Of greatest importance is what to do with gypsum which is

a by-product of phosphate fertilizer production. Tremendous quantities of gypsum are produced during the phosphate fertilizer process and no disposal plan has yet been formulated for this plant. This is one of the major reasons why a similar project for the Western part of Syria was scrapped, that is, the area already had a gypsum problem and the production of more was deemed unsatisfactory. Unless the gypsum problem can be solved at the Homs plant, transportation and disposal of the gypsum could be an expensive problem for the plant.

The other problem will be having sufficient power generated by the power company to satisfy the needs of the fertilizer plant. The local power company already has problems providing enough power to existing industries without having to add the needs of more industrial users. This problem, however, will likely be solved with the addition of new power facilities being planned for the area.

The only fertilizer needs that will not be met by domestic production will be some compound and potassium fertilizers. Potassium use is very small and therefore no projects have been planned for its domestic production.

5.2.5 Liquid and Gas Fertilizer

Experimentation has been performed using liquid fertilizers as a substitute for solid fertilizers. The results of the experiments indicated that, in terms of costs, the solid fertilizers had a better return than the liquid. However, small quantities of liquid fertilizers are imported for use in greenhouses and for other specialized purposes. As of yet, experiments have not been performed on the feasibility of using gaseous fertilizers. It is unlikely that application equipment would be available for use in Syria due to its high purchase cost and need for specialized handling.

5.2.6 Pricing Policy

The pricing mechanism for fertilizer is established as follows. Imported fertilizers are purchased on a contract basis by GEZA from the best source (cheapest) possible. All tenders are considered and then the low bidder is awarded the contract. When the ship carrying fertilizer arrives in port GEZA notifies the ACB. GEZA is in charge of unloading fertilizer from the ship and reloading it on trucks. The labor costs, customs, insurance and taxes are estimated to average 7 percent above the cost of the fertilizer at the dock. An additional 4 percent profit is added before the fertilizer is transferred to the ACB. All administrative fees such as salaries come out of the 4 percent profit figure. The ACB then adds a charge for transportation and storage to the price of the fertilizer. Included in the ACB's charge are operating costs and administrative costs. In addition, the ACB is allowed a 4 percent profit margin on its handling of the fertilizer. The final price to the farmer is set by the High Council on

Agriculture. After taking all of the cost margins into consideration the High Council announces the fertilizer prices for the year. Table 5.5 shows 1967-1978 fertilizer prices. Often the government provides subsidies on fertilizer to enable the farmer to decrease his costs of production. Because of the subsidy there is a natural incentive for farmers to use as much fertilizer as is profitable. This is one of the reasons why the ACB orders surplus quantities of fertilizer for domestic use.

Table 5.5—Determined Prices for Fertilizer Sales in Syria

(SP/ton)					
Year	TSP - 46%	NH ₄ - 33%	CaN - 26%	KSO ₄ - 50%	Compound - 18-46%
1967		390		340	
1968	360	300		340	430
1969	360	300		340	430
1970	360	300		340	430
1971	340	295		330	430
1972	585	310		366	630
1973	385	341		374	473
1974	578	512	450	561	710
1975	980	805	618	561	1200
1976	686	564	433	561	840
1977	686	564	433	561	840
1978	686	564	433	561	840

Source: ACB unpublished data.

5.2.7 Recommendations

With the addition of two new fertilizer plants all fertilizer needs for Syrian agriculture should be met by domestic production with the exception of some compounds and potassium. Distributing and storing the fertilizer, however, is still a problem. Plans by the ACB to increase their storage capacity to 300,000 tons should be adequate for their storage needs for the next few years. There will continue to be storage problems, however, until this additional storage capacity is completed in 1984 (estimated).

A transportation and distribution study to determine the most efficient distribution of fertilizer would assist in identifying bottlenecks

in fertilizer flows to the farmers. The elimination of these bottlenecks would enable the fertilizer to be delivered to the warehouses in plenty of time for farmers to gain the maximum benefit from application at planting time. In other words, the farmers would not have to delay planting because the fertilizer had not yet arrived at the warehouse.

Overall, the fertilizer situation looks good for Syrian agriculture in the near future. Hopefully, costs of producing fertilizer will be reduced and the savings passed on to the farmers. Unless, these costs of production are reduced, heavy subsidies are going to be required in order for farmers to be able to afford fertilizer.

5.3 FUEL

Gasoline consumption (premium and regular) in Syria appears to be leveling off as shown in Table 5.6. Yet, the demand for petroleum products by the agricultural sector has steadily increased corresponding to a marked increase in the degree of mechanization by agricultural producers. Table 5.7 shows, for example, projected levels of demand for fuel and oil products for different agricultural machines during the Fourth 5-Year Plan. The Syrian Arab Distributing Company for the Petroleum Commodities (SADCOP), the government petroleum marketing company, also indicated that the demand for diesel fuel is likely to continue to climb as mechanization in agriculture increases.

Table 5.6--Diesel, Regular and Premium Fuel Consumption in Syria, 1971-77.

Type of fuel	1971	1972	1973	1974	1975	1976	1977
	(1,000 metric tons)						
Diesel	24	29	28	34	42	51	61
Regular (Low Octane)	95	109	117	109	102	90	61
Premium (High Octane)	117	142	168	223	228	407	421
Source: SADCOP							

5.3.1 Domestic Production

All petroleum products refined in Syria are presently being produced at the refinery in Homs. Another refinery between Tartous and Latakia is expected to begin operation sometime in 1980. Syria exports all of its domestic crude oil because of its heavy nature. The oil that is refined in Homs is from Iraq and Saudi Arabia which is in payment for allowing their pipelines to go across Syrian soil.

The productive capacity of the Homs plant is 5.2 million tons per year. Total production in 1978 was 4.32 million tons which indicates

that the plant is operating at about 83 percent of its productive capacity. The lack of sufficient electrical power, steam and cooling water were cited as reasons why the refinery at Homs did not operate at a higher rate of capacity utilization. These problems are much the same as those faced by the Homs fertilizer plant. Therefore, it appears that a definite bottleneck to increased capacity utilization is the inadequate power generating facilities in the Homs area.

5.3.2 Distribution

The marketing channel for fuel is shown in Figure 5.4. Petroleum products from the Homs plant are both domestically consumed and exported. The exported products are delivered to the port at Tartous by both pipeline and truck. A railway line is being completed between Tartous and Homs which will also facilitate the flow of petroleum to the port for export. Discharging facilities are also being improved at the port to assist the efficient flow of exported fuels into the tankers.

Domestically consumed petroleum products are delivered from the Homs plant by railway, pipeline and truck. The railway systems are being expanded in the Western parts of Syria to decrease transportation costs to these areas. Additional pipeline facilities are being built to the major Syrian cities to again decrease transportation costs. The majority of petroleum products, however, are still being delivered by truck from the Homs plant.

The majority of truck transportation of petroleum products is on a private contract basis. To supplement private trucks, SADCOP has a small fleet of its own trucks that also distribute petroleum products. At present, the supply of trucks for fuel distribution appears to be adequate.

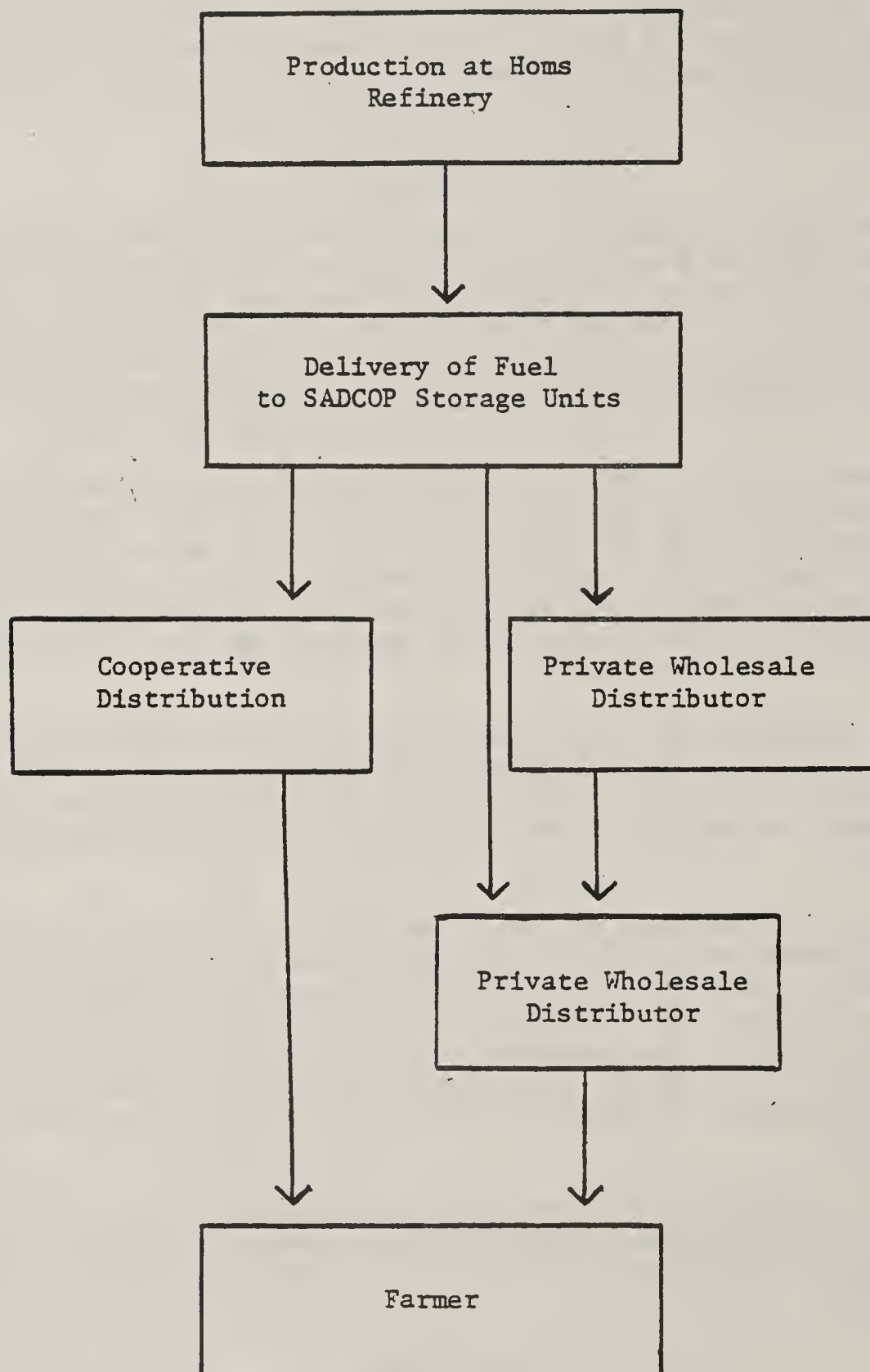
Petroleum products are delivered directly from the refinery to SADCOP storage facilities located throughout the country. Trucks are then used to deliver the fuel to both private fuel distributors and the cooperatives. The cooperative's share of the fuel being distributed is minor, however, when compared to private fuel distribution. Local farmers then go to either the private distributor or the cooperative for their fuel needs. Purchases of fuel by the local farmers are on a cash basis only.

The private retail distributor is obligated to pay for his deliveries from SADCOP in cash. These payments are made directly to the district SADCOP offices which, in turn, send them into SADCOP's main office in Damascus.

5.3.3 Price Policy

Petroleum prices in Syria are fixed by the government. The SADCOP makes price proposals to the Ministry of Petroleum and Mining Resources who passes the price recommendations along to the Prime Minister. After

Figure 5.4. The Distribution System for Petroleum Products in Syria.



approval, the Ministry of Supply and Internal Trade announces the price to the public which is the same for all parts of the country. The 1978 fuel prices are listed below:

High Octane Gasoline	90 piasters/liter
Low Octane Gasoline	77.5 piasters/liter
Diesel	25 piasters/liter

5.3.3.1 Profit Margins

Profit margins for retail distributors are based on whether the fuel is being sold for government vehicle consumption or not. The profit margin on government fuel sales is smaller because the retail price on these sales is less than for everyone else. The government pays a lower price to avoid collecting taxes on its own consumption.

The profit margins are the following for the retail fuel distributors:

1. Government Sales

A. Diesel	685 piasters/1000 liters
B. High Octane Gasoline	600 piasters/1000 liters
C. Low Octane Gasoline	600 piasters/1000 liters

2. Non-Government Sales

A. Diesel	685 piasters/1000 liters
B. High Octane Gasoline	1750 piasters/1000 liters
C. Low Octane Gasoline	1500 piasters/1000 liters

Some distributors act as intermediaries between the SADCOP storage areas and the final retail distributor. These petroleum wholesalers also have a fixed profit margin. Their margin on diesel, for example, is 135 piasters/1000 liters. The retailer's profit margin on diesel is correspondingly reduced by 135 piasters to 550 piasters/1000 liters, when he deals with a wholesaler.

5.3.4 Recommendations

The demand for exported fuel has been rapidly increasing in the past several years. To meet the raising demand, Syria is increasing its refining capacity by building another plant along the coast. This plant should help Syria in terms of foreign trade as it will be able to increase its exports of refined petroleum products. Domestic supplies should be more than sufficient to meet domestic needs.

The only bottleneck which appears to be a problem is that of the power plant operating near Homs. It is suggested that an analysis be performed to assess the ability of the plant to meet both current and future power needs. Without sufficient power, the possibility of a major bottleneck in petroleum refining could occur. Additional power capacity would also be helpful in light of the increased industrial needs being forecast for the area in the near future.

5.4 INSECTICIDES

Numerous pesticides, fungicides and herbicides are used by Syrian farmers to prevent crop damage. In the Syrian cost of production studies all pesticides, fungicides and herbicides are lumped together under the category of insecticides. The figures below indicate the level and variability of insecticide use over the past several years.

1971	-	629 tons
1972	-	2,028 tons
1973	-	1,910 tons
1974	-	1,188 tons
1975	-	1,648 tons
1976	-	2,034 tons
1977	-	2,566 tons

This variability is due to weather conditions, cropping patterns and special insect or mold problems. The use of insecticides is important in maintaining high quality crops in Syrian agriculture.

5.4.1 Plant Protection Department

The Plant Protection Department (PPD) in the Ministry of Agriculture and Agrarian Reform (MAAR) is responsible for protecting agricultural production against diseases and insects. This involves setting the relevant standards of insecticide use and supervising their implementation. The PPD is also responsible for determining the technical specifications of all kinds of machinery, equipment and materials used in pest control. All agricultural air navigation used in pest control also comes under the direction of the PPD. Finally, the PPD sets the regulations that are needed for effecting agricultural internal and external quarantines and supervising the implementation of such.

5.4.2 Imports

Each year the MAAR estimates what the needs of farmers will be for chemicals. It is very difficult to estimate what will be needed to combat insects and diseases that might arise during the year. This estimate is given to the ACB who notifies GEZA of its chemical requirements. GEZA then puts out international tenders for the specific

quantities and types of chemicals needed. The low bidder is awarded the license to import through GEZA to the ACB.

All insecticides are imported either by truck from Europe or by boat. Import restrictions are similar to those outlined in the fertilizer section of this report. The major difference is that the private sector is also involved in importing and distributing insecticides. Figure 5.5 shows the marketing channel of the insecticides to the farmer. The private companies receive licenses to import and distribute chemicals directly to the farmer. On the other hand, GEZA acts as the importing agent for the ACB in the same manner as in fertilizer distribution.

5.4.3 Distribution

The private companies and the ACB distribute about the same amount of insecticides in terms of value to farmers each year. The main responsibility of the ACB is to provide insecticides to cover all of the major crops including sugar beets, cotton, wheat, barley and vegetables. The private companies provide insecticides for the rest of the crops as well as many of the specialized chemicals for the major crops.

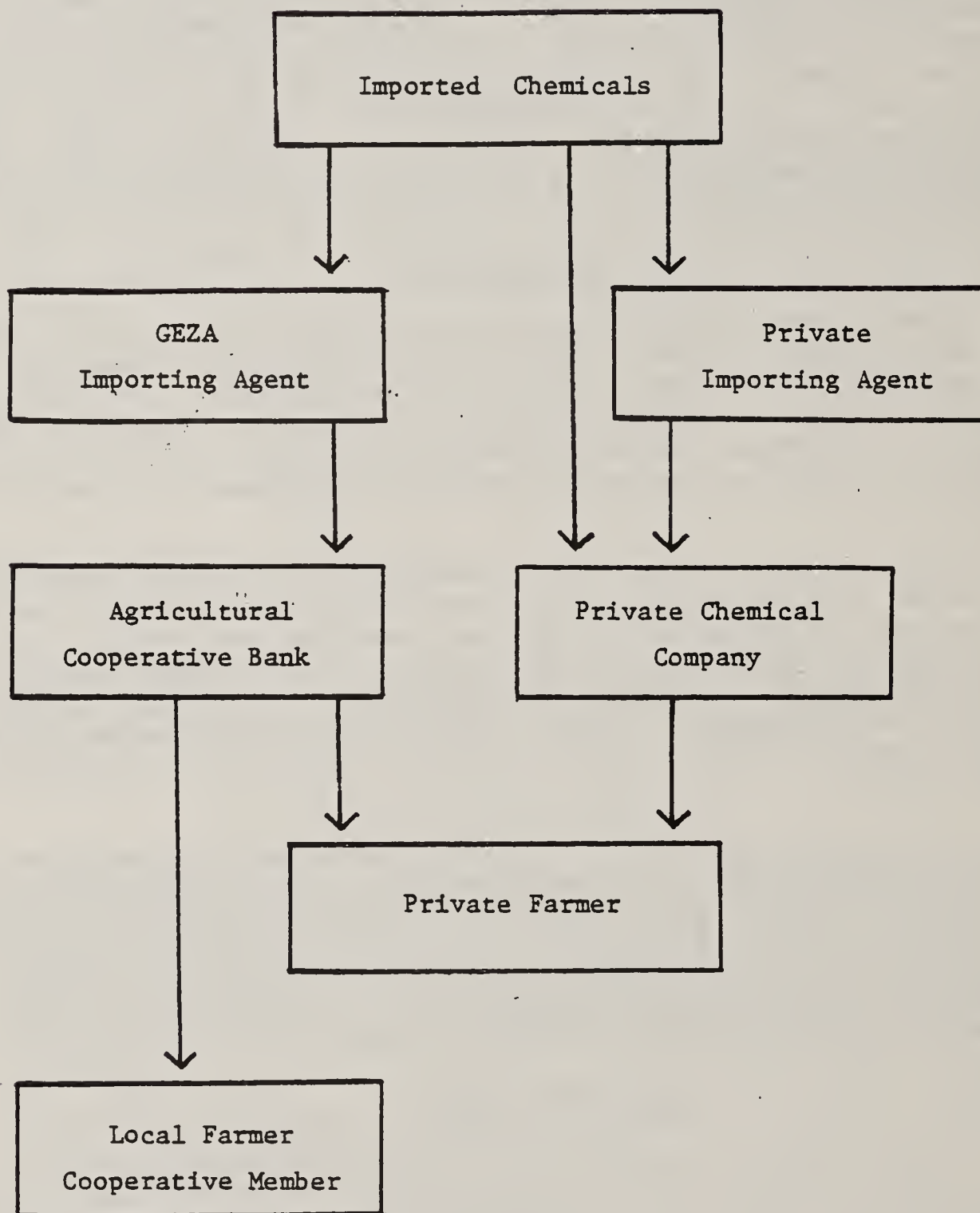
There are seven major private companies distributing insecticides in Syria. The chemicals come from many different countries. Some of the private companies act as their own importing agent while others use a special importing agent who provides them with their chemicals for distribution. The main supplies of chemicals come from Germany and the United States. To import chemicals the private companies must first obtain a license from the Ministry of Agriculture and Agrarian Reform (MAAR).

Before any insecticide is allowed to be commercially marketed it must have been tested for at least two years. Certification of this testing process must be provided to the Department of Plant Protection in the MAAR before the insecticide may be sold to farmers. Many of the insecticides are thoroughly tested by the individual insecticide company, but an independent analysis must be provided to allow the license to be issued for its commercial sale.

5.4.4 Application

Sales of insecticides by private companies are made in cash to both private farmers and cooperatives. There are no restrictions on the volume of insecticides that any farmer can buy. Recommended application rates are provided to the farmer by the insecticide dealer. The private companies also employ many field representatives to assist the farmers in proper application of the chemicals. Individuals and cooperative members may also use the sprayers from the company they purchase the chemicals. The private companies provide both handheld and tractor mounted or pulled units for application of the chemicals.

Figure 5.5. The Distribution of Insecticides to Agricultural Producers.



The ACB sells insecticides to both private farmers and cooperatives. They have both in-kind and cash loans to cover the insecticide purchases. In addition, chemicals are provided free of charge to sugar beet growers to encourage their production. The ACB also provides spraying equipment in conjunction with the Department of Plant Protection to the farmers. The spraying equipment is kept in the ACB warehouses for use by the farmers. There are not enough sprayers, however, to service the needs of the farmers. This is especially true when an epidemic of insects needs to be controlled. For this reason additional spraying units are being purchased.

Pesticide application is up to each farmer. In each annual plan there are recommended pesticide applications for each crop according to the area where the crop is being raised. If an insecticide problem is widespread then a compulsory spraying order is issued by the MAAR. Under these conditions a farmer has no choice but to have his fields sprayed. If a farmer refuses to have his field sprayed, the MAAR will spray his field anyway and charge him for the application. The farmer may also be fined for noncompliance with the edict to spray.

5.4.4.1 Equipment

The ACB is provided with spraying equipment from the Department of Plant Protection for sale to the farmers. Sales of this equipment have not been pushed by the ACB with the result being too few sprayers available when they are really needed. The ACB is cautious about keeping sprayers on hand because they are afraid they might not sell. The Department of Plant Protection takes a dim view of this practice and has put pressure on the ACB to sell the sprayers.

There are also eight airplanes available for spraying. These planes are owned by the MAAR. The eight planes, however are not enough to handle the demand for airplane spraying. The MAAR has plans to acquire at least four more planes to handle the additional spraying demand.

The cooperatives have very little spraying equipment within the organization. Most of the spraying equipment they have are handheld sprayers for use on small parcels of land. The MAAR would like the cooperatives to purchase additional spraying equipment for use by its members. This would alleviate some of the pressure for spraying equipment and enable the MAAR to provide adequate spraying equipment when an epidemic strikes.

The General Machinery Company in Aleppo, has just started importing spraying equipment. Most of their equipment is powered by tractors. One sprayer is mounted on the back of the tractor with 50 gallon tanks holding the insecticide and 20 foot boom sprayers to discharge the chemical. The other sprayer is pulled behind the tractor and is powered off of the tractor's PTO. This sprayer is usually able

to spray more area because its tanks are larger. Both of these sprayers do an excellent job in covering the crop in a short time.

5.4.5 Insecticide Testing

A major problem being faced by the MAAR is its inability to test insecticides before being used. No laboratory facilities are available in the Department of Plant Protection to test for either insecticide effectiveness or residue accumulations. Even though tests are performed on chemicals before being used in Syria, there is still the chance that conditions in Syria might not match the test area close enough and problems in the chemical use may arise. The MAAR is quite concerned about this issue and hopes to be able to have facilities to analyze chemicals soon.

5.4.6 Proposed Domestic Production

Several proposals have been made for domestic production of insecticides. Initially, a study by the United Nations recommended the building of a chemical formulation plant in Syria. The study indicated that Syria could import the active ingredients and then add inert ingredients, solvents, etc. for the formulation of many different chemicals. The project never got any further than the planning stage. It appears that no one could be found who would be willing to manage the project for the salary that was offered. Salaries in neighboring countries were much higher for the same job and thus no one would undertake the project.

A second project involved a joint venture between Jordan and Syria for a chemical formulation plant. Several chemical companies in Europe were very interested in building the plant. The plant would have had the capacity to provide the chemical needs for both Syria and Jordan. This project was also dropped because the European chemical companies found there were too many obstacles to overcome in attempting to establish the plant. There is still a possibility, however, that the project might work out. If it does, it would be a great asset to both countries.

5.4.7 Price Policy

Pricing methods for pesticides differ from other inputs because of the involvement of the private sector in the direct marketing of the chemicals to the farmer. Private companies are allowed a 34 percent profit margin from the port to the farmer. This profit margin is net of costs including materials, transportation, customs and licenses. If there is a wholesaler involved then the wholesaler gets a 20 percent and the retailer gets a 14 percent profit margin.

5.4.7.1 Private Company Price Policy

The reason for the seemingly high profit margin is that high costs are incurred by the chemical companies in testing, promoting and

distributing their product via field personnel. Often these field extension agents will spend a great deal of time with farmers in showing them the proper way to apply the chemicals and the proper amounts.

To establish the market price for the chemicals, the private company proposes to the Ministry of Supply and Internal Trade the price which should be charged for each particular chemical. The price is based on the calculations concerning profit margins and costs. Along with each price proposal the private company must show evidence of the calculations it used in deriving the market price. The Ministry of Supply and Internal Trade then requests the permission of the Prime Minister to issue the prices for the chemicals. Once the price has been issued for the chemical it is the same throughout the whole country. Periodically the prices as well as the costs, are checked by the government to see if the private companies are staying in line. If a company is found to be either charging too much for its chemicals or if its profit margin is bigger than what was stated in its price proposal then the government can withdraw the companies' license to sell.

5.4.7.2 ACB Price Policy

The ACB also has fixed prices on the insecticides it sells. The prices of most ACB distributed chemicals are lower than those in the private sector because the profit margins allowed to government agencies are not as big as those allowed to private companies. The importing agent, GEZA, is allowed approximately a 4 percent profit margin over costs. The ACB is allowed between 3 and 4 percent for profit above its costs. Hence, the total margin for chemicals distributed by the ACB is considerably less than that of the private companies.

5.4.7.3 How Price Policy Affects Purchases

Given only price information it would seem unlikely that any farmer would ever buy chemicals from anyone but the ACB. Private companies offer services, however, not provided by the ACB. For example, many field extension employees of the private companies show the farmer the correct method and amount of chemical to apply on his crop. Sometimes the field agents even assist in applying the chemical for the farmer. The chemical companies are eager to provide these services as they are competing against each other in providing chemicals to the farmer. Each company spends a lot of money each year promoting its product and introducing new products to the farmers.

The chemical companies also have their stores conveniently located in farm production areas so that the farmer does not waste time getting his chemicals. The ACB, on the other hand, has most of its warehouses several kilometers from the bank. The farmer is

required to pay at the bank, get a receipt and then go to the warehouse to pick up his chemicals. The same procedure applies to in-kind purchases of chemicals from the ACB. Having to go to two different places before being able to get the chemicals is time consuming and thus the farmer would rather pay more for the chemical than waste his time. In addition, many farmers require only small quantities of chemicals and to be able to pick up the chemical when it is paid for is worth the extra cost. Large farmers, however, producing the major crops still rely on the ACB for their chemical needs. The prices are low enough and the quantities purchased large enough to make it beneficial for the large farmer to buy through the ACB.

5.4.7.4 Subsidies

No government subsidies are allowed on insecticides, at least directly. Providing sugar beet farmers chemicals free of charge is an indirect subsidy. The government doesn't want to subsidize because the prices of comparable chemicals in neighboring countries are much higher. If chemical prices were subsidized that would lower the price to the farmer and likely cause smuggling of chemicals to countries with higher prices.

5.4.8 Recommendations

Agricultural chemicals appear to be in abundant supply to the farmers. This is in part due to the involvement of the private sector in distributing chemicals to the farmers. The profit margins are sufficient to encourage the private companies to satisfy the needs of the farmer. The ACB also provides the chemicals at competitive rates which makes chemical use by Syrian farmers profitable.

The purchase of several more spray equipped planes would provide the MAAR with enough reserve to take care of unexpected insect problems or diseases. Planes are especially important during the latter stages of plant development when a tractor cannot get into the field without damaging developing crops. If the MAAR does not want to invest in additional planes, they might allow private individuals to apply chemicals by plane thus insuring an adequate spraying capacity to handle any spraying problems that might arise.

5.5 AGRICULTURAL MACHINERY AND OTHER IMPLEMENTS

The Syrian government recognizes the need to have increased mechanization in the agricultural sector. Table 5.8 shows, for example, the increase in agricultural machinery use from 1971 to 1977.

The estimated machinery and implement requirements for each 5-year plan are based on findings by field experts under the direction of the Department of Rural Engineering in the Ministry of Agriculture and Agrarian Reform (MAAR). These projections are based

Table 5.8--Agricultural Machines Used in Cultivation 1971-1977

Years	No. of Sprayers		Insecticides		No. of Fixed Thrashers	Combined Harvesters		Harvesters		Disk Harrow & Pulverizers	Seeders	Ploughs		Water Raising Pumps	Tractors	
	By Hand	By Motors	By Hand	By Motors		By Tractors	By Motors	By Animals	By Tractors			Old	Modern		50 Horses & More	Less than 50 Horses
1971	2099	1010	14967	7455	531	65	1368	-	52	1117	1929	83037	13210	29437	3283	6323
1972	1787	899	12095	6788	657	86	1294	2	49	1105	1660	107235	13620	29954	4705	5669
1973	2761	831	11815	7587	814	122	1587	23	77	1557	1656	116878	15117	32192	5857	5717
1974	2832	836	12737	17316	1102	87	1657	1	92	1782	1702	126710	17430	37591	6813	6051
1975	3031	1325	12614	8706	1367	57	1607	-	60	2012	1903	113743	20253	40416	9030	6273
1976	2866	1337	13632	9406	1448	58	2088	5	59	2486	2020	113483	23714	40500	12104	6463
1977	3222	1153	15085	11735	1512	105	2254	23	48	2687	2087	108301	26310	40650	14227	6445

Source: Statistical Abstract 1977.

on normal cropping years and the likely demand by farmers for increased mechanization. The estimates include private, public and cooperative machinery and implement needs.

Actual machinery production and sales may vary from the plan for a number of reasons. First, poor harvests will reduce farmer incomes and their ability to purchase machinery and implements. Of course the opposite is true in times of good harvests. Second, as machinery prices climb, the farmer's ability to purchase equipment may be reduced. Third, as different production areas are brought under cultivation their machinery needs will vary and may not be according to those contained in the Plan. Therefore, the Plan is presented as a guideline for the General Machinery Company (GMC) to use in ordering imported as well as domestically produced agricultural machinery.

5.5.1 Domestic Production

Tractor production in Syria is limited to manufacturing about 20 percent of the light tractor parts and then importing the remaining 80 percent for assembly at the Al-Frat tractor plant in Aleppo. The production of these tractors (Erbo) began in 1974 as a joint venture with Motoriberica of Spain. Motoriberica provides technical expertise for the assemblage of the tractors at the Al-Frat company.

Initially, the tractor plant produced three different horsepower rated tractors. However, beginning in 1979 the Al-Frat plant only assembles 71 horsepower tractors. Production capacity at the plant with one shift is estimated to be over 10,000 tractors per year. Production estimates for 1979, indicate that about 2,500 seventy-one horsepower tractors will be assembled. The plant, therefore, has considerable excess capacity for the production of tractors. However, production has been limited because large inventories have been built up in the past through over production.

The Al-Frat tractor company has plans to expand its facilities to include production of more tractor parts, including engines and other heavy machinery parts. Until these facilities become a reality, the tractor company will continue to import parts through Motoriberica.

5.5.2 Imports

The GMC is also responsible for supplying imported tractors to farmers whose needs are not met by the 71 HP Erbo tractor. Table 5.9 shows the volume of tractor imports and those actually sold. The large imported tractors come from the United States and Germany. These tractors provide the necessary horsepower to cultivate the fields in the Northeast where deep cultivation is required. Romania, on the other hand, provides low horsepower tractors for use in fruit and citrus tree production and gardens.

Table 5.9--Syrrian Tractor Production, Imports and Sales

Country	Horsepower Rating	Imported and Domestic Production					Tractors Sold				
		1975	1976	1977	1978	Total	1975	1976	1977	1978	Total
Romania	45	400	1200	-	-	1600	-	200	200	640	1150
Syria	61	3305	1463	305	2	5075	3354	1202	709	-	5260
Syria	71	-	1404	1673	1828	4902	-	825	1220	2034	4079
Syria	82	774	1319	683	-	2776	629	768	526	694	2617
East Germany	100	-	500	-	-	500	-	182	182	121	485
U.S.A.	105	-	63	-	-	63	-	63	-	-	63
Total		4479	5946	2661	1830	14916	3983	3295	2892	3489	13659

Source: Department of Rural Engineering, MAAR.

As the agent for the MAAR, the GMC puts out international tenders to selected foreign tractor companies specifying the number and horsepower rating of the tractor desired. This same procedure is used in the importation of all agricultural machinery and implements. The foreign machinery company with the best price may obtain a license to import its product. The purchase price is not the only consideration, however, in deciding who is awarded a license to import machinery. The relationship between the Syrian government and the importing government is very important in regards to the terms of payment for the machinery, that is, those countries who allow for payment in Syrian commodities are favored over those countries who require payment in their own currency.

The machinery company is trying to eliminate the problems of having so many different makes of machinery. In the past, tractors were imported from many different countries and when it came time to repair the tractors the spare parts were not available. The result was long delays in obtaining spare parts from the numerous countries who were importing tractors. The GMC decided to ease this problem by importing equipment from only a few different countries. This approach has helped both in terms of spare parts and machinery repair.

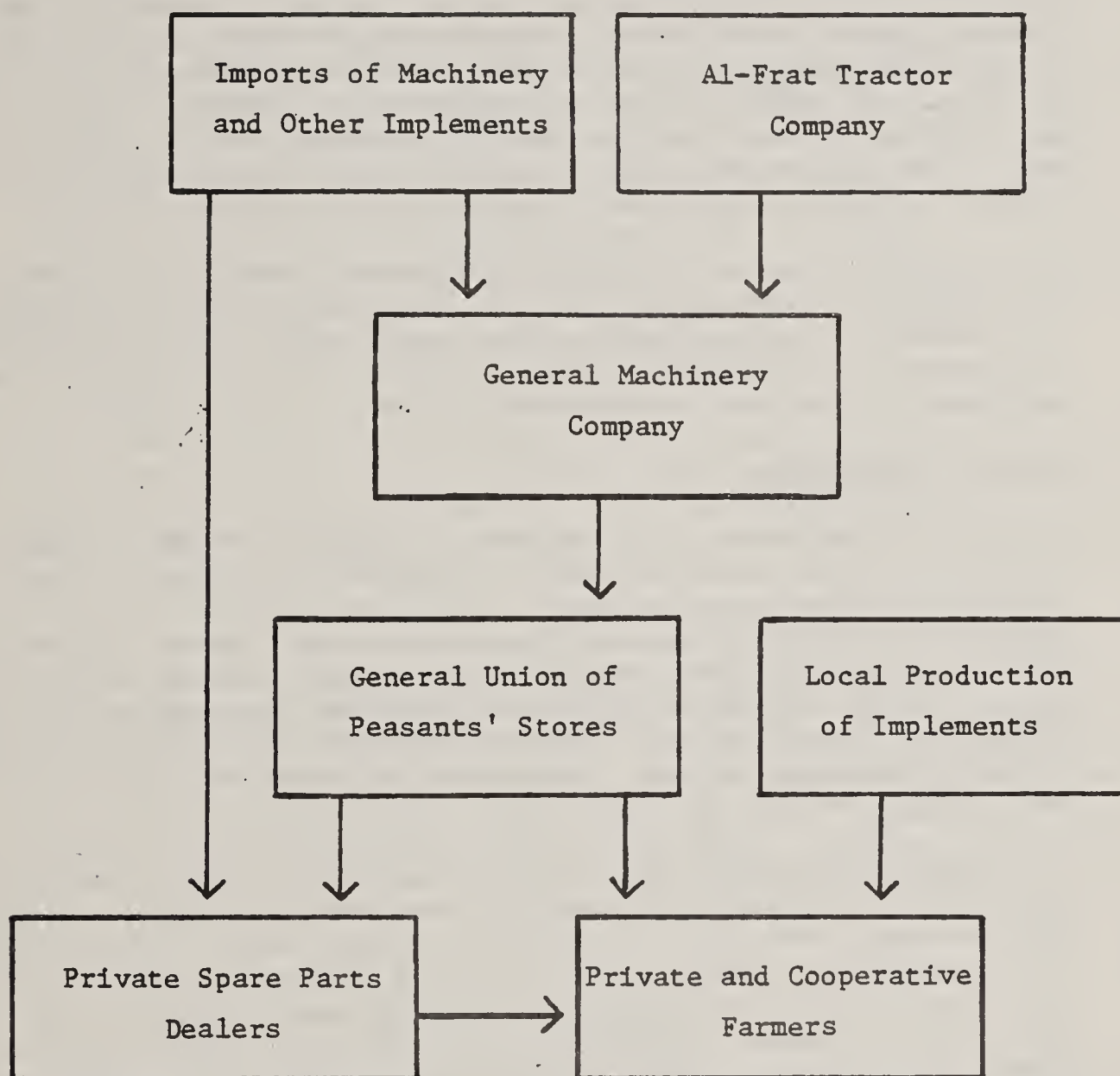
The GMC also imports implement parts and then assembles them at the Al-Frat tractor plant. The acquisition of the implement parts is the same as for tractors. Implements are imported according to expected demand by the farmers and the annual plan.

5.5.3 Distribution

The marketing channel for agricultural machinery and implements is shown in Figure 5.6. All tractor purchases are made through the GMC office in Aleppo. Implements and spare parts may be purchased from the General Union of Peasants distributing stores. These stores provide the implements and spare parts for both private farmers and the cooperatives.

An application filed with the GMC is required from both private farmers and cooperatives before a tractor may be purchased. If a private farmer has sufficient cash to purchase a tractor and if the tractor is in stock then the whole purchasing process will only take a few days. If the tractor is not in stock then the farmer will have to wait until the next shipment of tractors arrive. The length between shipments depends on how many tractors are needed and how long it has been since the last shipment. The GMC indicated that if a farmer has sufficient cash most tractors will be delivered in less than three months.

Figure 5.6. Distribution of Machinery and Implements to Agricultural Sector.



5.5.3.1 Tractor Financing

In order for a cooperative to purchase a tractor it must file an application with the General Union of Peasants (GUP) for inclusion in the next annual plan. Therefore, it is generally a year before the cooperative can receive its tractor after making application. Once the application has been approved by the GUP, the cooperative arranges its financing through the Agricultural Cooperative Bank (ACB). If the loan is approved then the cooperative can pick up the tractor from the GMC. Payment for the tractor is made directly from the ACB to the GMC. Of all the tractors purchased each year only about 15 percent are by cooperatives.

The GMC also has financing arrangements available for the private farmer. The terms of the loan are similar to those offered by the ACB. The loans are for five years with a five percent rate of interest. Seventy-five percent of the private individuals who purchase tractors get a loan from the GMC.

5.5.3.2 Spare Parts

The distribution of spare parts is handled by the GUP under the direction of the GMC. The GUP has distribution stores located in each district and most sub-districts. The spare parts are available to both cooperatives and private farmers on a cash basis. Currently, most of the spare parts are imported through a general parts distributing company in Spain. The GMC is, however, involved in a building program which will provide facilities for the production of a limited number of machinery parts. Production of these spare parts is expected to begin within the next year.

Each year the GMC offers an international tender specifying the spare parts they wish to purchase. The terms of payment are important as previously indicated. Keeping an adequate supply of the spare parts needed for some 27 different makes of tractors now in operation is a real problem. To insure that tractor owners will have spare parts when they are needed, the GMC has allowed the private sector to also import spare parts. Generally the parts purchased from the private sector are those for which there is little demand, because the prices they charge are higher than those charged by the GUP. In most cases, the GUP store can provide the spare parts needs of the local farmers. However, those farmers who are located in fairly remote production areas often have to rely on the private sector to get their spare parts.

Although both private and cooperative members can purchase from the GUP store, if there is a shortage of parts the cooperative member has first priority. For this reason, the private sector has a spare parts outlet in nearly all the production areas.

5.5.4 Machinery Repair

Machinery repair is an important facet of efficient agricultural production. Most production areas have both small cooperative and private repair stations. The cooperative service stations are primarily used to keep the cooperative machinery in working order. Private farmers may have repairs performed in the cooperative stations for a fee competitive with the private service stations. Most private farmers, however, rely on local private mechanics to perform their repairs. Generally these private mechanics are the best trained in machinery repair. Favorable machinery repair prices in the private sector has made good services available in most areas. For those farmers located in fairly remote areas there are mobile repair units available to assist them in their repair needs. As long as the cost of repair services remains relatively high, there will be a sufficient supply of private mechanics to satisfy the farmer's needs.

While repair facilities in the private sector do not appear to be a problem, this is not the case with the cooperative repair stations. The main problem is that the salary of the cooperative mechanics is too low to keep the good mechanics from setting up their own private repair station. Therefore, those mechanics who remain are generally less skilled and less apt to be able to solve repair problems.

To better equip mechanics with the ability to repair machinery, the GUP has contracted with a German company to build repair and maintenance stations in various locations in the country. Initially, two will be built as pilot projects with more planned if these stations prove successful. The facility will include German trained technicians providing training classes in machinery repair. Sophisticated diagnosing equipment will be available for faster diagnosis of machinery problems. These training programs will enable local mechanics to be better equipped to cope with the machinery repair problems they encounter.

5.5.5 Pricing Policy

The pricing policy for machinery and implements differs according to whether the item is domestically produced or imported. Domestic production refers to all agricultural equipment assembled in Syria.

As importing agent for tractors and implements, the GMC charges a fee for its services. The fee varies according to the item being imported, but ranges between 10 and 15 percent above the cost of importing. Included in this fee is a profit margin for the GMC. The implements and spare parts are then transferred to the GUP stores where they are sold. The GUP is allowed to add an additional 10 to 15 percent before these items are sold to farmers.

For those farmers who live in isolated areas of the country, their parts and implements are provided through private dealers. These private dealers get their parts from the district GUP store where they add

a margin for profit and then sell the parts to the farmer. The profit margin largely depends on the supply and demand conditions which exist. If a farmer needs a spare part immediately he will likely have to pay more for it. There are very few controls on the prices of spare parts in isolated areas.

Many local private dealers have also obtained the right to import spare parts directly. Most of these are specialized parts where the quantity demanded is low. Since the GUP has standard prices for most spare parts in the country, if private dealer's prices get too far out of line farmers will purchase their parts elsewhere.

5.5.6 Problems

The goal of the High Council on Agriculture is to mechanize the agricultural sector. However, many of the farm units are too small to effectively utilize the expensive machinery. Those farm units which are big enough to utilize machinery are often cropped in a pattern which makes machinery use difficult. For example, a farmer having 10 hectares might be raising several different crops on his land. The fields might be situated such that getting machinery to work them might do damage to existing crops.

Although cooperatives have purchased substantial amounts of machinery, there is concern as to whether the machinery is in reality available to all cooperative members. It is generally known that most of the cooperative officials are the larger land holding farmers who also make the administrative decisions. Often the large farmers rent the cooperative machinery to do work on their own land. At the same time, these large farmers perform custom machinery operations with their own personal machinery at a higher cost than the cooperative rates. The small farmer often finds that he must have his work done by the private farmer's machinery because all of the cooperative machinery is being used on the large farmer's land. The small cooperative member is not able to receive the benefit of the cooperative ownership of machinery. Therefore, an allocation process for cooperative machinery use would go a long way in providing an equitable system for machinery use for all cooperative members.

The high cost of machinery is also a problem in terms of increasing mechanization of agriculture. The farm operators who need mechanization the most are those who can least afford to pay the high machinery prices. Therefore, it becomes very difficult to make the conversion from animal and manual labor to mechanization.

5.5.7 Recommendations

The GMC has come a long way in eliminating many of the machinery problems that face agricultural producers. Reducing the number of different kinds of imported tractors has helped to alleviate the problem of trying to stock all the spare parts needed to repair the

different tractor types. Continued standardizing of imports will help in providing more specialized repair services as mechanics will be able to specialize on specific type tractor repairs.

The following are recommendations to increase mechanization in Syrian agriculture.

- (1) One of the main bottlenecks in machinery use is in financing the purchases. The initial capital investment is very high for most farmers and the probability for many of them of paying off the tractor in five years is small. Therefore, those farmers who would like to mechanize and can justify machinery use are not able to because the terms of the loans are too rigid. It is suggested that special loan programs be established for new or small farmers. These loans might have a repayability period of ten years instead of five. This would enable the farmer to expand his farming capability, yet be able to pay off his loan. A program such as the above would only be available to farmers whose repayability would be insufficient for a 5-year loan.
- (2) A broad based extension program to demonstrate to farmers the savings in costs of production through using machinery would help to stimulate agricultural mechanization. The extension program would also help the farmer to understand proper maintenance and efficient use of the machinery.
- (3) A close look at the cooperatives and how their machinery use program is actually working might provide insight into what groups are really benefiting through cooperative machinery ownership. A strict allocation process for all cooperative members in machinery use would allow the small farmer to benefit from his cooperative membership.
- (4) Finally, before the GMC expands its capacity to produce more implements for agriculture it should make sure that by doing so it will be lowering implement costs to the farmer. If machinery parts or implements can be imported cheaper than domestically produced it would be more efficient to make investments in other areas of agriculture where the benefits would be greater. This point is raised because of the planned expansion of the Al-Frat tractor company's plan to produce tractor engine blocks. This is an adventurous undertaking, but it may not be the most feasible in terms of lowering the overall cost of tractors. Proper cost-benefit analysis should be performed before an undertaking of this magnitude is begun.

5.6 SEEDS AND PLANTING MATERIALS

The Syrian Government realizes that superior, improved varieties of crops are essential to any program designed to increase agricultural production. Fundamental to any crop improvement program is the need for a program to supply improved seeds. So long as the common, traditional, unimproved varieties are planted, no major increase in crop production output can be expected. For this reason, it is the policy of the SARG to be responsible for providing improved seeds and planting materials for all of Syrian agriculture. The General Organization for Seed was created in 1976 to carry out this objective. Before looking specifically at the seed situation in Syria, it might be well to briefly characterize some of the unique characteristics of seeds and the conditions necessary for contributing to improved agricultural productivity.

Common unimproved varieties of seeds have always been available to agriculture. Improvements have come about gradually but little can be gained by giving special consideration to problems of seed supplies as long as no improved varieties have been introduced.

When an improved variety has been developed through selection or breeding and has proved superior, producing and distributing the seed become important factors. Improved varieties, however, are only superior with reference to a particular set of environmental circumstances. The best varieties for one region may be completely useless in another. A proven variety is superior because of genetic characteristics bred into it that given adaptation to specific conditions of soil and climate, high yielding capacity, resistance to drought or cold, resistance to diseases and insects, nutritive value, acceptability of taste and texture, desirable growth habit, and other characteristics enable it to perform better than other varieties. However, factors involved in the production and marketing of seeds are quite involved and require special consideration.

5.6.1 Unique Characteristics of Seeds

Because of the special characteristics of seeds, the requirements for their successful production and distribution are somewhat different from those of other purchasable inputs. Among these characteristics are the following:

1. The fundamental qualities of the variety can be maintained only by the use of authentic planting stocks and careful production practices. Its characteristics cannot be assessed by research station tests alone, but must be confirmed by the field performance of plants produced from the seed.
2. Seeds require special procedures and handling in all steps of production, processing, storing, and distribution to ensure that the seed reaching the farmer will be viable and the intended variety.

3. Since new improved seed supplies all originate from a small lot selected from existing seeds, it takes several generations to multiply the stocks from the original nucleus of breeder seed to meet the requirements of farmers.
4. Seed-borne diseases and contaminants such as weed seeds will reduce the productivity of the crop.

5.6.2 Methods of Reproduction

Crops vary widely in their methods of reproduction or seed multiplication. Crops such as potatoes are propagated by asexual or vegetative means, that is, by cuttings, or from tubers. Aside from mislabeling and mixing, the main precaution is to avoid contamination with systemic diseases such as viruses.

The naturally self-pollinated cereal crops such as wheat and rice, are relatively free from the danger of contamination by natural cross-pollination. This kind of crop can be easily reproduced through successive generations of the multiplication process. Sufficient care must be taken to prevent the mixing of seed varieties during cleaning, storage and treating.

The naturally open-pollinated crops present special problems for seed production. To prevent genetic contamination from other varieties due to cross-pollination, seed fields of either open pollinated varieties or hybrids must be isolated from other fields of the same crop. Furthermore, as the open pollinated varieties are subject to genetic shift during reproduction, special precautions must be taken in selection and breeding to maintain the genetic integrity of the variety.

5.6.3 Classes of Seed

Several classes of seed are generally recognized in the stages from the plant breeders' program to the farmers' fields. Breeder seed is maintained under rigidly exacting conditions and serves as a source for producing the stock seed. Stock seed in turn is used to produce the commercial seed that is distributed to farmers. Maintenance of an adequate supply of breeder seed is normally the task of the experiment station at which the variety was developed. There must be an orderly program for multiplying the stock seed from the nucleus of breeder seed. This may be carried out by governmental seed farms, by individual farmer-producers under appropriate supervision, or by seed companies under contract with producers or in their own fields, also under supervision. Since any changes in genetic characteristics that occur during multiplication of the stock seed will be passed on to the commercial seed produced from it, it is essential that great care be exercised during this stage.

5.6.4 Seed Marketing

The major requirements for successful seed marketing procedures include:

1. Facilities for processing (including drying immediately after harvest), cleaning, grading, treating, and bagging.
2. Facilities for storage and distribution at the wholesale level.
3. Facilities within easy reach of individual farmers for the distribution of properly labeled seed of good quality. Because of the localized nature of varietal adaptation and of seed production, centralized facilities may in some cases be less urgent. Individual farmers, cooperatives, or small seed firms may produce and sell to farmers in their areas.
4. A merchandizing and information program that takes the seed to the farmer.

All phases of seed marketing should be supervised and controlled by establishing seed laws, seed quality standards and certification procedures backed up by seed laws, with an enforcement agency, seed laboratories, and technically competent seed inspectors.

5.6.5 The General Organization for Seed

The General Organization for Seed started operation in 1976. Although it is the intention of the organization to supply all seeds, it presently supplies all of the seed only for cotton. This is possible because the Cotton Marketing Organization buys and gins all cotton produced in Syria. The cotton selected for seed is ginned separately and the seed distributed to cotton producers through the General organization for Seed.

The present Syrian requirements for cotton seed as seed is around 22,000 m.t. per year. Since 1976, the amount of seed saved for planting purposes has been around 24,000 m.t. thus providing a ten percent cushion to meet seed needs.

The procedure for handling cotton in Syria is for the government to purchase all cotton produced in Syria through the Cotton Marketing Organization and to gin all cotton at one of 20 gins owned by the Cotton Marketing Organization. The cotton grown for seed is raised on specially, preselected fields and is ginned separately so that the purity and quality of the seed can be maintained. The seed is bagged in special bags, tagged and delivered to the General Organization for Seed for storage, treating and testing before it is delivered to the various branches of the Agricultural Cooperative Bank for delivery to farmers for planting. The CMO pays the same price for all cotton but those farmers producing cotton to be used for seed get special services from the Seed Organization. All payments to producers are made through the Agricultural Cooperative Bank. Any credit that has been provided to the cotton producer is then deducted as well as the charges for ginning and handling the cotton before payment is made to the producer. It is estimated that over 90% of the cotton producers use the credit facilities of the ACB.

The Cotton Bureau is responsible for finding and developing improved varieties of cotton. Seed samples have been imported from all cotton producing regions all over the world. The breeding and testing work is done on Syrian Experiment Stations located in the cotton production regions. Previously the primary variety grown was A-1 (Aleppo 1). This variety was susceptible to wilt and A-40 was developed as a cross between A-1 and Acala and it has proved to be more resistant to wilt. The experience in Syria has been that it takes at least 5 years to get sufficient seed for general distribution to farmers after a new and improved variety has been developed. It is the policy of the government to develop new improved varieties which have an increased tolerance to disease and insects.

The objective of the seed breeding program is to improve cotton characteristics and to raise the tolerance level to diseases such as verticillium wilt and angular leaf spot. The varieties released must also be able to compete with upland cottons such as Acala in its spinning and weaving qualities.

The area and production of cotton in Syria is shown in Tables 5.10, 5.11, and 5.12. By far, the dominant variety planted in Syria is Aleppo 1 with over 99% of the area in cotton planted to this variety. The other varieties shown in the table include Aleppo 40, 45, and 33. It is intended that by 1980 most of the cotton planted will be Aleppo 40. This new variety excels Aleppo 1 by its higher tolerance to verticillium wilt, its longer staple by 1/32 inch and its higher tensile strength, up to 90,000 p.s.i. compared to 80,000 p.s.i. for Aleppo 1.

Table 5. 10. Area and Production of Cotton by variety in 1977 and Planned Distribution for Seed in 1978.

Variety	1977		1978 (Planned)	
	Area ha	Cotton Production tons	Area ha	Seed Distri- bution ton
Aleppo 1	185716	393579	150000	21136
Aleppo 40	73	204	1000	108
Aleppo 45	65	144	800	80
Aleppo 33	753	1966	1940	194
Total	186607	394893	153740	21510

Source: The Cotton Marketing Organization.

Table 5. 11. Production of Seed Cotton in Syria for Irrigated and Rainfed, 1968 - 1977.

Season	Area in Hectares			Production in tons			Yield in kg/ha		
	Irrig.	R.F.	Total	Irrig.	R. F.	Total	Irrig.	R. F.	Mean
1968/1969	219930	59497	279427	376846	17347	394193	1713	292	1411
1969/1970	236556	62516	299072	363976	18536	382512	1539	297	1279
1970/1971	236133	13270	249403	383687	184	383871	1625	14	1539
1971/1972	220191	30292	250483	398147	9815	407962	1808	324	1629
1972/1973	210537	27673	238210	410265	8621	418886	1949	312	1758
1973/1974	195393	5024	200417	402874	1377	404251	2062	274	2017
1974/1975	180649	25212	205861	379474	7060	386534	2100	280	1878
1975/1976	185089	23037	208126	405795	8594	414339	2192	373	1991
1976/1977	172660	9096	181756	404474	4379	408853	2343	481	2249
1977/1978	176284	10223	186507	390747	4146	394893	2217	406	2117

Source: The Cotton Marketing Organization.

Table 5. 12. Raw Cotton Production by Muhafazat in Syria, 1977 - 1978.

Province	Area in Hectares			Production in, tons			Yield in kg/ha		
	Irrig.	R. F.	Total	Irrig.	R. F.	Total	Irrig.	R. F.	Mean
Hassaka	36417	—	36417	91786	—	91786	2520	—	2520
Deir-Ez-Zor	38455	—	38455	61488	—	61488	1599	—	1599
Rakka	29225	—	29225	70419	—	70419	2410	—	2410
Aleppo	30810	4799	35609	78542	1886	80428	2549	393	2226
Idlib	5131	3375	8506	9699	1640	11339	1890	486	1333
Hama	8059	1468	9527	21340	293	21633	2648	200	2270
El-Ghab	20960	393	21353	43307	256	43563	2065	651	2040
Homs	4514	188	4702	8555	71	8626	1895	378	1834
Damascus	2713	—	2713	5611	—	5611	2068	—	2068
Total	176284	10223	186507	390747	4146	394893	2217	406	2117

Source: The Cotton Marketing Organization.

Sprinkler irrigated cotton has recently been attacked by a very serious disease which is a bacterial blight or angular leaf spot. It appears as angular oily spots on leaves which become black and fall. Small bolls are also affected by oily dots which become black and the white cotton underneath turns brown. Picking becomes difficult because the affected cotton sticks to the boll. Thus yield is affected as well as the quality.

Aleppo 45 was developed as a hybrid between Aleppo 1 and a Ugandan variety. This variety is particularly resistant to bacterial blight (angular leaf spot) which is a problem in sprinkler irrigated areas. This new variety is characterized by its stronger and longer fibers than Aleppo 1 but is shorter than Aleppo 40. Since only about 500 ha of land is presently sprinkler irrigated, this variety is expected to remain of minor importance.

Aleppo 33 was selected as an off-type from the American acala variety. Although it is more tolerant to verticillium wilt than Aleppo 1, it is similar in fiber characteristics and will not replace Aleppo 40 as the dominant variety.

The trends in seed cotton production for the past 10 years are shown in Table 5. 11. Although the area planted to cotton has declined considerably, the production has remained fairly constant due to a sizable increase in yields, both for irrigated and rain-fed production.

Most of the cotton produced in Syria is irrigated, see Table 5. 12. In fact, the mohafazats with the most production, characteristically do not produce any rain-fed cotton.

A new problem occurred in 1977 which resulted in a decrease in cotton production in Deir-Ez-Zor Mohafazat. Because of unusually high temperatures, a phenomenon referred to as "giant cotton" occurred with the result that the average yield for cotton per ha decreased for the first time since 1970. The yield for 1977 was 2217 kg/ha seed cotton compared with 2343 kg/ha for 1976, or in other words, a decrease of 126 kg/ha. As a result of this problem, the government has increased the support for research to look at all factors which might be related to this phenomenon including: temperature, insects, diseases, genetic composition, fertilization and density.

In addition to cotton, the Seed Organization also handles major quantities of planting materials for wheat, potatoes, corn and a small quantity of broad beans. It is estimated that around 140,000 tons of wheat seed is required to meet Syrian planting needs. The growth in providing improved seed for planting by the Seed Organization has been phenomenal. In 1976, the year the Seed Organization began operation, only 1200 tons of seed wheat was provided for planting. The growth since then has been as follows:

1976	1200 tons
1977	5000 tons
1978	22000 tons
1979	50000 tons (Planned)

It is anticipated that the Seed Organization will be able to provide 100,000 tons by 1980. The limiting factor in not being able to provide more of the seed requirements is the lack of storage capacity. At present there are 11 seed processing plants available, each with a capacity of 9000 tons. At least 4 more plants are required if the wheat seed requirements are to be met by the Seed Organization.

The growth in providing potato seed for planting has been sizable but not as phenomenal as for wheat. It is estimated that approximately 20,000 tons are needed for planting purposes. In 1976 the Seed Organization provided 1200 tons and the growth since then has been as follows:

1976	1200 tons
1977	4000 tons
1978	7000 tons
1979	8000 tons (estimated)

The aim of the Seed Organization is to provide approximately 75% of the seed potato needs, primarily by importing quality seed and letting farmers provide the other 25% from local stocks.

At present, the Seed Organization is providing only about 350 tons of seed corn out of a total 2500 tons required. The difference is provided from locally produced sources. It is not anticipated that the Seed Organization needs to provide more seed corn until it is able to make arrangements to handle hybrid seed. So far, it has not been possible to obtain hybrid seed varieties that are adapted to Syrian conditions.

5.6.6 Problems

A number of continuing problems are faced by any seed improvement program. First among these is the development of good foundation seed stock. Fortunately for Syria, seed development work has been in progress for some time, especially for cotton by the Cotton Bureau but for other seeds, very little has been done. The development of the improved Mexican wheat varieties also provided a boost in that area but there is still a problem in acquiring other improved seed stocks for planting. Attempts have been made to make arrangements with foreign private sources for improved seeds, especially hybrid seeds but these arrangements have been difficult to negotiate.

Another problem is faced in multiplying the seed stock for distribution. Farmers are reluctant to produce seed stock unless premiums are offered and in addition are reluctant to pay extra for improved seeds. The Seed Organization overcomes these problems to some extent

by paying premiums to seed producers. A premium of 25% over the market price is paid for the production of foundation seed wheat and 20% for improved planting seed. For potatoes, a 25% premium is paid to producers for all potatoes produced for seed. In addition, seeds are provided to farmers as credits through the ACB at low interest rates and thus farmers are able to realize some subsidy in planting the improved seeds. Although farmers were reluctant to plant the improved seeds offered by the Seed Organization at first, they now are demanding more seed than the Seed Organization can supply.

5.6.7 Recommendations

An immediate problem facing the Seed Organization in meeting the increased demands for improved seed is adequate storage and treating facilities especially for wheat which requires very large volumes of seed. Syria, at present has three seed processing plants for certified seeds, each with 5000 tons storage capacity and eight other plants with 2000 tons each for a total of around 31,000 tons capacity. To meet all of the wheat processing and storage capacity needed requires an additional 65,000 tons capacity. These plants should be built in convenient and economical locations which will promote high quality standards for seed handling.

Plans for bringing about these improvements are already in progress in Syria but one bottleneck that has been present from the beginning is the lack of enough competent personnel. Training programs are needed to provide a continuing supply of all types of high quality talent required by a seed improvement program. The talents required for improved seed breeding are, of course obvious but not so obvious are the personnel needed to inspect and supervise the plantings, growing, and harvesting stages of seed production. Competent and honest inspection are required for all stages of this work. In addition, proper handling and management procedures need to be followed at the seed processing plant to prevent contamination and mixing of seeds at those locations.

The fact that the Seed Organization was created is evidence of the importance that SARG places on the use of improved seeds and planting materials. It has received strong support since its founding in 1976 and should continue to receive strong support. The biggest bottleneck for future development appears to be the lack of trained personnel and it is strongly recommended that increased attention be given to this area. A broad based program of training will be required to support a seed improvement program. The program should be developed with both foreign and Syrian universities to develop the needed skills and with appropriate national and international organizations which can offer assistance in this area.

5.7 BREEDING STOCK

The Animal Breeding Department (ABD) in the Ministry of Agriculture and Agrarian Reform is responsible for establishing the production requirements for the Syrian livestock sector with specific reference to sheep, cows, poultry and fish. The ABD in conjunction with the General Institute for cows also supervises the distribution of improved calves at different Syrian villages for their use in the natural insemination of Akshi cows to increase their productivity.

An indepth analysis of the livestock sector by other participants in the Syrian Agricultural Sector Assessment has been made. Therefore, this section will deal specifically with dairy cow imports and use.

5.7.1 Imports

The level of dairy cow imports since 1974 is listed as follows:

1974	1,441
1975	none
1976	5,857
1977	5,656
1978	4,508
1979	8,000

The majority of the imported dairy cows are from Europe. Farmer purchases of these high quality cows are made through the Agricultural Cooperative Bank. The cost of each cow is high and represents a considerable investment on the part of the small farmer.

5.7.2 Problems

Improper feed rationing has resulted in a high mortality rate in calf production as well as poor levels of milk production. One of the main problems has been that the increase in cow numbers has not been matched by a corresponding increase in green fodder production. Syrian farmers also appear to be lacking in technical training in regards to proper dairy cow care. This is especially true for those farmers who have never owned a dairy cow before. It is often the case that the farmer is not aware of the special nutritional requirements necessary for high milk production. Therefore, the dairy cows receive the same feed as all other livestock under the farmer's care resulting in poor milk production.

5.7.3 Recommendations

It is recommended that before farmers purchase the imported dairy cows that they be properly trained on how to take care of the cows. This would involve an extension type program specifically focusing on farmers who have either never have had a dairy cow or who appear to be inadequately trained on proper dairy care. The training program could include a demonstration of the benefits of providing high quality green fodder versus, say, grain stubble as a source of animal feed. The higher the quality of feed the greater the milk production and the more satisfied the farmers will be in regards to the purchase of their dairy cows.

5.8. SUMMARY OF FINDINGS AND RECOMMENDATIONS

The purpose of this section of the report is to summarize how well agricultural inputs are being provided to Syrian farmers and to make recommendations which will enable a more efficient allocation of these inputs in increasing productivity in this sector of the Syrian economy.

Several bottlenecks in the current method of input storage, distribution and production have created problems to Syrian farmers in the following ways:

1. Capital for use in building permanent storage facilities and purchasing farm machinery has not been adequate to keep up with the increasing demand for their use. First, while storage capacity has increased over time, it has not nearly kept pace with the increase in demand for storage facilities. The lack of storage capacity is the result of insufficient capital outlays for the construction of additional storage facilities for feed, fertilizer and seed. Although plans ~~have been made to increase storage capacity over time,~~ current plans are deemed insufficient to meet the growing demand for storage of agricultural inputs. The lack of storage capacity places Syrian livestock producers in an especially precarious position in terms of not having adequate storage facilities to handle the emergency feed reserve. Not only is the storage capacity inadequate to handle the feed reserve, but when combined with the annual feed carryover stocks the problem becomes more intensified. Without additional storage there exists the possibility of a mis-allocation of feed to various regions of the country.

The result is excess in some areas and deficiencies in others. The feed then requires redistribution to the proper location when storage becomes available. This process is both time consuming and costly in terms of transportation expenses.

Second, the terms of loans to finance the purchases of agricultural machinery are so structured as to pose significant financial burdens on small farmers who are attempting to mechanize. Although the interest rates are reasonable, the length of the loans appears to be too short for many borrowers. The high payments required to pay off the loans over a five year period prohibit many small farmers from purchasing machinery.

2. There also appears to be a lack of qualified field extension personnel to assist farm operators in improving their farm production practices. Without trained field support the dissemination of improved production information to producers is difficult. Attempts at increased mechanization can only be realized if the farm operator can be shown the benefits of using other animal or manual labor. The distribution of dairy cows to small farmers throughout the country and the resulting problems reinforces the need for farmer oriented

extension work. For example, many of the farmers who purchased dairy cows did not understand their need for proper nutrition in order to achieve high milk production levels. The result is that many farmers did not provide enough green fodder which significantly reduced milk production.

3. The delivery of inputs from the ports to the various distribution stations throughout the country is often viewed as a bottleneck in the farmer's production process. A delay in delivery of inputs from the ports to the local warehouses can cause delays to the farmer in planting his crop. These delays can mean the difference between a good crop and a poor crop. A related problem involves the distances the farmer is required to travel in order to pick up his inputs. The local distribution stores are often not located close to the farm operators so that collection of inputs by the producer becomes very time consuming.

The following are recommendations for implementation in the fifth five year plan to increase the efficiency and flow agricultural inputs to Syrian agricultural producers.

1. Storage capacity for feed grains is not adequate at present and will continue to be a problem in the future unless some affirmative action is taken. Additional storage facilities for all types of feed grains, fertilizers and seeds need to be built. The most critical need is in the area of feed grains, however. Projected livestock numbers during the fifth five year plan establish the need for considerable expansion in feed grain storage capacity. If the feed reserve becomes a reality during the fifth five year plan then current storage capacity will not be adequate to handle both the reserve and annual carryover stocks.

The feed storage facilities could be of two types; tower silos or small, flat concrete buildings. In the livestock concentrated areas centrally located large tower silos would probably provide the most efficient means for storing both the feed reserve and annual feed consumption. On the other hand, small, flat concrete storage buildings would likely handle the feed storage requirements for both private producers and low livestock concentrated areas. A study should be conducted to determine the cost and benefits of both types of storage facilities. Time is of essence, however, as the storage capacity for feed grains as well as other inputs is woefully short of what is needed.

2. An intensification of domestic feed production is needed to alleviate some of the burden on foreign exchange resulting from increasing imports of livestock feeds. The domestic feed production program should emphasize both green fodder and feed grain production. Syria has an ideal climate for high quality green fodder production. Assistance from the government

in defraying the initial planting costs of the producer as well as a guarantee in the form of a subsidy on production would likely provide the needed incentive to farmers to increase their green fodder production. Special financing considerations on forage equipment purchases through the ACB would also enable farmers to more easily increase their green fodder production. In addition, if farmers could have the benefits of growing green fodder crops over other cash crops demonstrated to them at local extension type meetings, it is likely that many farm operators would respond by increasing production.

Increased production of feed grains with special emphasis on maize and sorghum would help in relieving the increase in imports of these feed components by the poultry and dairy sectors. Experimentation of drought resistant feed grains should also be explored for possible use in the marginal rainfall areas of Syria.

3. A study needs to be conducted in regards to the economic feasibility of building bulk handling facilities at the ports for both imports and exports of agricultural inputs. The costs and benefits of implementing such facilities should be thoroughly investigated keeping in mind the likelihood of increased port use during the fifth five year plan. Bulk handling facilities would not only decrease labor and materials costs, but also enable faster delivery of inputs from the ships to the farmer. Of course, to fully utilize bulk handling at the ports, delivery of bulk materials to local warehouses would have to be implemented. It is likely that many areas do not have sufficient demand for bulk deliveries to warrant local bulk facilities being built. However, in areas where large quantities of bulk material can be utilized, the savings to using this kind of system appears to warrant serious investigation. The final step in the bulk handling process would be to have large livestock or crop producers install bulk handling facilities on their farms. It is proposed, therefore, that several pilot projects be instituted using bulk delivery of feed to both local stores and large livestock producers. If these projects prove to be economically successful then the program should be expanded to include more farm operators.
4. Power generating facilities in industrial sections of the country need to be examined in light of the anticipated increase in its demand during the fifth five year plan. At present, the power facilities near Homs is inadequate to provide the power needs of its industrial customers. Without a sufficient power base the industrial sector cannot fully utilize its resource base. Therefore, a study evaluating the need for additional power generating capacity in the industrial areas

during the fifth five year plan and beyond should be conducted.

5. Careful analysis should be made of the costs and benefits of domestically producing urea fertilizer given current economic conditions. It appears that Syria would be economically better off to export its petroleum products and import its fertilizer needs. The use of natural gas a substitute for naphata should be considered.
6. A transportation study to determine the most efficient means of fertilizer distribution would assist in identifying the adequacy of the current distribution system. This information is particularly important with the addition of the new fertilizer plants and their corresponding output. An assessment of the adequacy of the distribution system to handle both current and expected domestic production would help in identifying the best method and timing of fertilizer deliveries for both domestic consumption and exportation. In conjunction with this study an analysis should be made regarding the feasibility of bulk deliveries of fertilizer to large scale crop producers. A pilot-project is recommended which would involve the delivery of fertilizer to selected crop producers in bulk rather than bags. Successful implementation of such a program could provide significant savings in fertilizer distribution for both the fertilizer plants and the ACB. These savings could then be passed onto the farmer in the form of lower fertilizer prices.
7. Serious consideration should be given to going ahead with the proposed building of a chemical formulation plant in Syria. There are several benefits to having such a plant within the country. First, with the chemicals being formulated within the country adequate testing and safeguards could be established to insure against potential problems due to outside non-uniform chemical testing procedures. Second, there would be a constant supply of chemicals to the Syrian farmers. Third, special insect or disease problem could be addressed within the country without relying on outside sources. Fourth, an additional industry would provide employment opportunities as well as increased expertise in this area of increasing importance in agriculture. Fifth, the project would have the potential of exporting chemicals to neighboring countries thus helping the Syrian foreign exchange situation.
8. Increased use of aerial insecticide application requires that either the MAAR purchase additional planes or allow private individuals to engage in aerial application. The use of private aerial service would enable the MAAR to place its capital resources in other areas such as extension training programs rather than in buying additional planes.

9. A study to assess how well the cooperative machinery program is functioning would be worthwhile as it appears there are some inequities in cooperative machinery use. Actual machinery use by each cooperative member in a few selected cooperatives would provide a good indication of how the cooperative machinery program is working. If there proves to be misallocations of machinery use time among the members a strict allocation program might be needed so that all cooperative members have an equal opportunity to use the machinery.
10. The seed improvement program in Syria has recently undergone rapid and monumental changes. As with any program that results in rapid changes, some snafu's are bound to occur. Greater effort is needed in following up on trouble spots in order to speed up the feedback which can help prevent their reoccurrence. An indepth study of the seed production and delivery systems would provide important insight into the changes in procedures required to improve the efficiency of each seed delivery system. It would also assist in identifying which parts of the production/marketing systems are most likely to yield the greatest benefit from change and which types of training programs are most needed to implement these changes.
11. Some of the skills that are lacking in the seed improvement program are already apparent to the Seed Organization. Provision needs to be made in the next 5 year plan for training programs to up grade the skills of the Seed Organization personnel as well as provide additional skilled personnel as required by the already planned expansion. These training programs should be coordinated with the appropriate foreign and international organizations which are ready to provide assistance.
12. An extensive training program for farmers on proper dairy cow care could both increase milk production and decrease calf mortality rate. This training program could be presented on a local basis by either livestock specialist or successful dairy farmers.

Annex 5.1

CAPACITY OF GOF STORES BY MOHAFAZAT

<u>Mohafazat</u>	<u>No. of buildings</u>	<u>Capacity (tons)</u>
Damascus	17	48,700
Homs	24	41,800
Hama	12	17,900
Idleb	16	25,500
Tartous	9	14,700
Aleppo	14	26,700
Raqqa	6	18,800
Deir Ez Zor	10	20,000
Hassakeh	13	23,300
Deraa	7	10,800
Seuieda	5	6,900
Latakia	8	13,800

Source: Farmkey Limited (1979), First Livestock Development Project

CAPACITY OF COOPERATIVE STORES BY MOHAFAZAT

<u>Mohafazat</u>	<u>No. of buildings</u>	<u>Capacity (m³)</u>
Damascus	4	11,313
Deraa	1	4,125
Idleb	5	17,877
Aleppo	6	35,751
Hama	12	86,625
Hams	4	15,626
Latakia	3	4,560
Deir Ez Zor	4	27,850
Hassakeh	1	8,250

Source: Farmkey Limited (1979), First Livestock Development Project

Proposed Feed Milling Plants

<u>Mohafazat</u>	<u>Capacity tons/hr.</u>	<u>Annual Capacity, 2 shift operations</u>
Damascus	30	90,000
Homs	30	90,000
Idleb	20	60,000
Deir Ez Zor	20	60,000

Source: Agriconsult AB, (1978) Feed Plant Feasibility Study
Final Report MPR. Ministry of Public Works Syria.

Syria: Agricultural Sector Assessment

Volume 4: Agricultural Marketing Annex

CHAPTER VI

A PLANNING MODEL FOR THE SYRIAN ECONOMY

By

John B. Penson, Jr.

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6.0: INTRODUCTION

Because of the interdependencies between the production sectors in the Syrian economy, an assessment of its agricultural sector should necessarily capture the effects that the productive capacity of this sector and its planned utilization have upon the rest of the economy. Likewise, this assessment should also capture the effects that the productive capacities of those sectors which supply agricultural production inputs or process agricultural output and their plans for utilizing existing capacity have upon the ability of the agricultural sector to meet projected final demand. In short, what is needed in a planned economy such as Syria's is a planning model that accounts for the interdependencies between its production sectors and the effects that their capacity and planned capacity utilization will have upon the economy's gross output under alternative annual production plans and its ability to meet current projected levels of final demand for specific goods and services.

The purpose of this study is to develop a planning model for the Syrian economy which gives particular emphasis to the agricultural sector and the linkages between this sector and the rest of the country's economy. The approach adopted in this study to account for these interrelationships is to first develop a system of simultaneous production functions for the production sectors in the Syrian economy. By computing the direct requirements for primary inputs (i.e., labor, fixed capital and government services) and the goods and services provided by other production sectors per unit of gross output for each sector, we can approximate the parameters for each sector's production function. A linear programming model which maximizes gross output subject to these production functions, the productive capacities of each sector, and the availability of primary inputs is then developed. Among other things, this model will report the economy's gross output and each sector's contribution to gross domestic product for the specific production plan being studied. The procedures to be followed in constructing this planning model are explained in this report along with specific recommendations for later modifications when additional data become available.

Section 6.1 of this report provides a brief description of the Syrian economy as reflected by available data. Section 6.2 describes the programming techniques employed in this study to estimate the production functions for those sectors specifically accounted for in the planning model, illustrates the many uses to which this model can be put, and discusses priorities for further model development. Section 6.3 presents the baseline solution given by this planning model for the 1985 Syrian Economy. Finally, Section 6.4 presents several additional solutions of the planning model which include the output levels required of each production sector to meet alternative levels of final demand in 1985.

6.1: AN OVERVIEW OF THE SYRIAN ECONOMY

The gross domestic product of the Syrian economy expressed in 1963 prices grew from 5,616 million S.P. in 1970 to 10,360 million S.P. in 1977. Annual gross fixed capital formation expressed in 1963 prices rose from 788 million S.P. to 2,651 million S.P. during this same period. Thus, annual real gross capital formation in 1977 was approximately 26 percent of real gross domestic product as compared to only 14 percent in 1970. These statistics, which are compiled by the Central Bureau of Statistics, emphasize this country's commitment to growth and hopes for self-efficiency. Not all production sectors have been expanding at the same rate, however. In the remainder of this section 6.1, I shall highlight some of the more relevant statistics which characterize the development of the major production sectors in the Syrian economy during the 1970s.

6.1.1: Agriculture

The agricultural sector has long been the main spring in the Syrian economy. For example, while the size of the labor force employed in agriculture has declined by some 19 percent from the level reported in 1972, the 754,000 laborers employed in this sector during 1977 represented 38 percent of total employment in the national economy (Table 6.1). In terms of its contribution to the economy, agriculture accounted for 1,729 million S.P. or 16.7 percent of the nation's real gross domestic product in 1977 (Table 6.2). This represents a decline from the 20.5 percent share agriculture recorded in 1970 and its peak contribution during the 1970s of 22.5 percent which this sector recorded in 1972. Unlike the other production sectors, however, such comparisons as these reflect the effects that variability in weather conditions from one year to the next can have upon output. The variable role played by agriculture during the 1970s is underscored by the percentage of Syria's total exports emanating from agriculture. In 1970, for example, 470.1 million S.P., or 70.4 percent of the country's total exports, came from agriculture. In 1977, however, this percentage had dropped to 28.6 percent

Another approach to measuring the growth of a particular sector is to observe its level of real gross fixed capital formation, or the level of annual real expenditures on productive fixed capital items. In agriculture, this means expenditures for such items as tractors, irrigation systems, structures, breeding livestock and fruit tree plantings. Reviewing the annual levels of real gross fixed capital formation reported in Table 6.3, we see that the level of real gross investment in agriculture declined from 210 million S.P. in 1970 to 185 million S.P. in 1977. In fact, 1975 stands alone as the only exception to the general trend toward declining levels of annual real gross fixed capital formation in this sector during the 1970s. It is also important to note that agriculture was the only sector which experienced declines in annual real gross fixed capital formation in the entire Syrian economy. This suggests, of course, that the stock of productive assets was growing at a slower rate in agriculture than was true elsewhere in the economy. While this can be understood if those sectors which supply inputs

Table 6.1 -- Distribution of labor force by economic activity.

Activity	1972	1973	1974	1975	1976	1977
				- thousands -		
Agriculture, forestry, hunting and fishing	926	858	874	916	578	754
Mining and quarrying	3	15	14	12	13	8
Manufacturing	185	166	190	211	276	265
Building and construction	106	96	110	130	204	178
Electricity, gas and water	19	8	7	10	17	17
Wholesale and retail trade, hotels and restaurants	141	158	164	189	186	203
Transport and communication	65	67	68	78	114	119
Financing, insurance and real estate brokerage	9	10	11	10	15	13
Social and personal services	219	270	228	238	355	381
Miscellaneous	42	41	53	45	70	57
Total	1,715	1,689	1,719	1,839	1,828	1,995

Source: The Central Bureau of Statistics

Table 6.2 -- Gross domestic product valued in 1963 prices.

Sector	1970	1971	1972	1973	1974	1975	1976	1977
Agriculture	1,153	1,187	1,524	1,107	1,535	1,636	1,877	1,729
Mining and manufacturing	1,109	1,204	1,326	1,411	1,793	1,938	2,126	2,329
Building and construction	159	205	204	200	239	269	407	433
Transport and communication	623	797	651	950	880	1,113	818	835
Trade	998	1,040	1,150	1,100	1,320	1,736	1,878	1,912
Finance	120	131	157	161	187	193	239	241
Real estate	347	360	371	381	394	415	443	474
Government	704	814	918	1,108	1,321	1,459	1,575	1,576
Services	403	448	486	520	586	636	732	831
Total	5,616	6,186	6,787	6,938	8,255	9,395	10,095	10,360

Source: The Central Bureau of Statistics.

Table 6.3 -- Distribution of gross fixed capital formation.

Sector	1970	1971	1972	1973	1974	1975	1976	1977
- Million Syrian Pounds -								
	<u>CURRENT PRICES</u>							
Agriculture	248	295	324	371	397	734	682	683
Mining and manufacturing	178	338	606	611	1,456	2,410	3,612	5,065
Transport and communication	158	155	137	200	260	625	1,242	1,530
Dwellings	298	320	360	406	633	843	1,161	1,464
Other	<u>108</u>	<u>137</u>	<u>174</u>	<u>297</u>	<u>420</u>	<u>902</u>	<u>1,209</u>	<u>1,528</u>
Total	990	1,245	1,601	1,885	3,166	5,514	7,829	10,270
	<u>CONSTANT PRICES</u>							
Agriculture	210	228	215	193	159	266	159	185
Mining and manufacturing	152	268	400	327	598	945	737	1,306
Transport and communication	135	121	91	104	103	240	267	392
Dwellings	202	211	194	196	229	250	331	358
Other	<u>89</u>	<u>104</u>	<u>112</u>	<u>150</u>	<u>160</u>	<u>304</u>	<u>332</u>	<u>410</u>
Total	788	932	1,012	970	1,249	2,005	1,826	2,651

Source: The Central Bureau of Statistics

to agriculture were operating at 100 percent of their productive capacities, this appears to not have been the case. For example, the Al Frat Tractor Company, Syria's principal manufacturer of farm tractors and equipment, has apparently been operating at only 25 to 30 percent of its productive capacity in recent years.

If we again examine the ratio of real gross fixed capital formation-to-real output during the 1970s, but now at the sector level, we see in agriculture that this ratio fell from 18 percent in 1970 to 11 percent in 1977. In other words, output was expanding at a faster rate than the capital stock in the agricultural sector. If barley yields had not declined as they did in 1977, this ratio would have been even lower. Thus, output in agriculture has been expanding due primarily to reasons other than expansion of its productive capital stock. Either this sector is more fully utilizing its existing productive capacity for economic reasons, or else improved seed varieties, etc. have lowered marginal costs, shifting the aggregate supply curve to the right.

The major commodity produced by the Syrian agricultural sector has traditionally been wheat. Approximately 1.22 million tons of wheat were produced in 1977, up 21.2 percent from 1969 production levels, but down 33 percent from the 1.807 million tons produced in 1972. Barley is another important cereal crop. In 1977, however, barley production fell 68 percent from the 1.06 million tons produced just one year earlier. The trends for other major agricultural commodities produced in Syria during the 1970s are presented in Table 5.

6.1.2: Mining and Manufacturing

The expansion of the manufacturing capacity of the Syrian economy during the 1970s is in sharp contrast to the picture painted above for agriculture. For example, the size of the labor force employed in the manufacturing sector has increased approximately 43 percent from the 185,000 laborers employed in 1972 (Table 6.1). Its 1977 output valued in constant prices was 110 percent greater than it was in 1970 (Table 6.2). Perhaps the most striking example of the expansion of this sector's productive capacity is the growth in annual real gross fixed capital formation during the 1970s. Annual real gross fixed capital formation in the mining and manufacturing sector during 1977 was 1,306 million S.P. (Table 6.3). This was 606 percent greater than the level of annual real gross investment in agriculture during 1977 and 759 percent greater than real gross investment in the mining and manufacturing sector in 1970.

Again it is useful to place this growth into perspective by relating real gross fixed capital formation to annual real output. The ratio of annual real gross fixed capital formation-to-annual real output in this sector rose from 14 percent in 1970 to 56 percent in 1977. In other words, the capital stock in the mining and manufacturing sector was expanding at a faster rate than output during the 1970s, thus indicating an apparent growing under-utilization of capacity in this sector.

Table 6.4 -- Production of major crops in Syria

Commodity	1969	1970	1971	1972	1973	1974	1975	1976	1977
	- thousand tons -								
Wheat	1,004	624	662	1,807	593	1,630	1,550	1,790	1,217
Barley	627	235	123	710	102	656	597	1,059	337
Corn	21	14	19	27	13	14	15	16	24
Lentils	100	58	61	96	24	83	67	136	117
Chick peas	50	15	24	36	28	60	27	51	25
Potatoes	48	65	73	119	111	105	125	126	164
Tomatoes	192	192	248	316	269	396	375	516	454
Onions	48	65	90	81	99	133	133	100	162
Cotton	382	383	408	419	404	386	414	409	395
Tobacco	9	7	8	12	11	10	12	12	12
Sugar beets	189	228	232	249	152	139	187	242	273
Olives	129	85	117	161	73	215	157	233	175
Grapes	248	206	209	208	147	250	281	319	353
Eggs ^{a/}	354	274	302	324	370	405	656	700	672
Milk	524	451	442	458	394	500	567	665	647

Source: The Central Bureau of Statistics

^{a/} In millions of unit.

6.1.3: Other Production Sectors

A review of Table 6.3 shows that the other sectors in the Syrian economy have also expanded their productive capacity at a faster rate than that achieved by agriculture. Annual real gross fixed capital formation in the transport and communications industries was 190 percent greater in 1977 than it was in 1970. The housing sector was also up 77 percent while the other sectors collectively increased by 361 percent.

6.1.4: Banking Sector

The banking system in Syria operates entirely within the public sector. Furthermore, there are no formal financial markets for the trading of debt and equity instruments. Investors can place their funds in demand deposits or time deposits at any one of 5 specialized banks in Syria: (1) the Agricultural Cooperative Bank, (2) the Commercial Bank, (3) the Industrial Bank, (4) the Real Estate Bank, and (5) the PopularCredit-Bank.^{1/} The rates paid on these deposits range anywhere from 4 percent on demand deposits to 5.75 percent on 12-month time deposits. Investors can also deposit funds in the Post Office Saving fund which pays a 5 percent rate of return on investment.

It is not surprising that the distribution of credit by economic activity reflects the annual gross fixed capital formation reported earlier for the major production sectors. Debt outstanding at the end of 1977 in agriculture made by the specialized banks totaled 494.3 million S.P. in current prices, up 77 percent of 11 percent was owed to the Commercial Bank while the remaining 89 percent was owed to the Agricultural Cooperative Bank. Using the implicit price deflator suggested by Table 6.3, we see however that net increases in debt outstanding in agriculture fell when measured in real terms. In other words, while there was an increase in credit extended by these specialized banks to agriculture, the funds extended in 1977 would buy substantially less in the way of capital goods than the funds extended in 1970.

The Agricultural Cooperative Bank (ACB), with its 59 branches throughout Syria, makes loans for agricultural purposes to the public, private and co-operative sectors for short, medium and long-term maturities.

^{1/} The term "specialized bank" refers to the unique lending function performed by each of these banks. Each has its own mission and clientele. For example, the Commercial Bank does not make loans directly to producers; this is the function of the Agricultural Cooperative Bank. The Commercial Bank does make short term loans to the Cereals Organization and other groups to finance the storage of agricultural commodities being held for export. These loans are counted as being in agriculture as we will see below, however.

Table 6.5 -- Distribution of bank credit by type of economic activity.

Sector	- end of the year -							
	1970	1971	1972	1973	1974	1975	1976	1977
	- Million Syrian Pounds -							
Agriculture	277.9	298.1	301.8	347.5	328.0	407.5	457.1	494.6
Commerce	938.8	1053.4	1393.5	1782.1	3007.0	4557.5	6250.7	6491.4
Industry	113.6	110.6	142.6	165.2	236.0	299.3	708.1	1838.3
Construction	47.1	58.2	77.0	92.2	133.2	238.6	444.4	635.6
Services	1.3	1.4	1.3	1.2	.5	1.7	.4	1.7
Miscellaneous	<u>12.7</u>	<u>13.8</u>	<u>9.2</u>	<u>8.8</u>	<u>15.7</u>	<u>24.6</u>	<u>30.8</u>	<u>24.9</u>
Total	1391.4	1535.5	1925.4	2397.0	3720.4	5529.2	7891.5	9486.5

Source: Central Bank of Syria.

The ACB's sources of loanable funds are deposits made by cooperatives and individuals, the bank's own capital and surplus, and funds obtained from the Central Bank of Syria by either discounting short-term loans or by direct borrowing. To discount short-term agricultural loans with the Central Bank, the ACB must pay only a 2 percent rate of interest, some 1.5 percentage points below the rate paid by the Commercial Bank.^{2/}

According to the Quarterly Report published by the Central Bank of Syria, the money supply, defined as M_1 balances or demand deposits plus currency, grew 27 percent in 1977 alone. While this is substantially higher than the 6.9 percent growth in the nominal money supply during 1971, it is representative of the growth rates achieved during much of the 1970s. This growth rate, however, cannot be compared to that recorded in countries which have a large private banking system and a substantial money multiplier effect. Even so, this growth rate may be too expansionary in light of the double-digit inflation rates recorded in this country during most of the 1970s.

Required reserves play a passive role in the Syrian banking system. The specialized banks are required to hold a fixed 15 percent of their demand deposits and time deposits in reserves. This reserve requirement ratio, because it is fixed, is not used as a policy instrument to expand or contract the availability of loanable funds at the specialized banks. Instead, the Central Bank can regulate the extension of credit to the specialized bank, alter the level of government deposits in specific banks, or simply expand the money supply via deficit financing at different growth rates to achieve their desired results.

Finally, the specialized banks can only discount short-term loans with the Central Bank, except that the ACB can discount medium term loans of cooperatives. Borrowings from the Central Bank are also limited to a 3-4 month maturity. Thus, the specialized banks are limited to their deposits and own capital when making medium and long term loans.

6.1.5: Summary

The production sectors in the Syrian economy are linked together through a network of goods and services markets. Agriculture requires intermediate goods such as fertilizer from other production sectors and financial and business services from still other production sectors to produce agricultural products. Likewise, such sectors as the food processing sector and the restaurant sector, are dependent upon a steady stream of products from the agricultural sector as inputs to their production processes. These are but a few examples of the interdependencies involved in the Syrian economy. To properly analyze the effects of alternative production plans and to determine which production sectors are capacity limiting and thus

^{2/} The ACB's complete lending program is discussed in greater detail in Chapter 4.

require further capital formation, planners need a model which accounts for these interrelationships. The properties of the planning model developed in this study to fulfill this need are discussed in the next section of this report.

6.2: DEVELOPMENT OF PLANNING MODEL

The purpose of this section is to describe the properties of the planning model developed in this study and to show the programming procedures required in using this model to address different planning issues. Those readers interested more in the applications of this planning model than in its properties may wish to skip to section 6.3 of this report.

6.2.1: Properties of Planning Model

The basic principles underlying the planning model developed in this study were first advanced by Leontief back in 1936.^{3/} His Nobel prize winning efforts in input-output analysis will be used to capture the effects of the production linkages between the production sectors in the Syrian economy.

The use of input-output analysis has been widely-used to examine a variety of issues. For example, it has been used to measure the multiplier effects of increased exports, the introduction of a new industry, and shortages of primary inputs. Byerlee and Halter built a simulation model centered around input-output analysis to account for the interdependencies between agriculture and the general economy.^{4/} The effects of alternative energy availabilities on the U.S. economy were simulated by Penn, McCarl, Brink and Irwin using input-output model solved as a linear programming problem.^{5/}

The general mathematical form of the input-output model is

$$(6.1) \quad X = AX + Y$$

where X is a (n x 1) matrix of total output by the production sectors, Y is a (n x 1) matrix of final demands for the goods produced by the production sectors, and A is a (n x n) matrix of technical coefficients. Equation (6.1) simply says that the total output of each production sector is equal to the

^{3/} Leontief, Wassily W., The Structure of the American Economy, 1919-1939, Second Edition, New York, Oxford University Press, 1951.

^{4/} Byerlee, D., and A.N. Halter, "A Macro-Economic Model for Agricultural Sector Analysis," American Journal of Agricultural Economics, 56(1974) 520-533.

^{5/} Penn, J.B., B.A. McCarl, L. Brink, and G.D. Irwin, "Modelling and Simulation of the U.S. Economy with Alternative Energy Availabilities," American Journal of Agricultural Economics, 58(1976): 663-671.

amount used by other production sectors (AX) plus the amount that goes to the final goods markets (Y). The terms in this equation can be rearranged to read

$$(6.2) \quad (I - A)X = Y$$

where I is a (n x n) identity matrix. Finally, the output levels can be solved for in terms of final demand, or

$$(6.3) \quad X = (I - A)^{-1} Y$$

where $(I - A)^{-1}$ is the inverse of the (I - A) matrix. The elements in the $(I - A)^{-1}$ matrix are referred to as the direct and indirect coefficients, or final demand multipliers.

The input-output model described above contains a fixed factor proportion production function for each production sector. Each is linear and homogeneous to degree zero with an elasticity of substitution equal to zero.^{6/} Because of this, Dorfman, Samuelson and Solow showed that it is possible to formulate the input-output model as a linear programming problem.^{7/}

6.2.1.1: Linear Programming Approach

The objective of a linear programming input-output model is to

$$(6.4) \quad \text{MAX } Z = L'X$$

subject to

$$(6.5) \quad (I - A)X - Y \leq 0$$

$$(6.6) \quad Y \leq M_y$$

$$(6.7) \quad X \geq 0$$

^{6/} When combined with linear primary input supply functions, this suggests a linear derived product supply curve for each sector.

^{7/} Dorfman, Robert, Paul A. Samuelson, and Robert M. Solow, Linear Programming and Economic Analysis, New York, McGraw-Hill, Inc., 1958.

where Z is gross output, L is a $(n \times 1)$ matrix of the values entered in the objective function, X is a $(n \times 1)$ matrix of total outputs by each production sector, I is a $(n \times n)$ identity matrix, A is a $(n \times n)$ matrix of direct or technical coefficients, Y is a $(n \times 1)$ matrix of the final demands for each product, O is a $(n \times 1)$ matrix of zeros, and n is the number of production sectors in the economy.

Equation (6.5) insures that the total output of each production sector is equal to intermediate demand (AX) plus final demand (Y). Equation (6.6) limits the amount of production that can go to the final goods markets, thereby giving the model a finite solution. The objective function expressed in equation (6.4), when solved subject to the constraints expressed in equations (6.5) through (6.7), will give the same solution as the original input-output expression stated in equation (6.3). Unlike equation (6.3), however, we can constrain the linear programming input-output model given in equations (6.4) through (6.7) above to reflect the effects that the availability of primary inputs or the productive capacities of the individual production sectors can have upon the economy's gross output.

The linear programming input-output model described above can be used to determine what the output of each production sector will have to be to meet the intermediate and final demands for its products. This can be done by substituting the projected final demands for each sector's output (M_y) into equation (6.6) and solving equations (6.4) through (6.7). Note that the model has not been constrained by the productive capacities of the individual production sectors. The differences between the output levels prescribed for each production sector and their maximum potential output represents the amount of these commodities that must be imported if total demand is to be satisfied.

The linear programming input-output model described above can also be used to measure the potential gross domestic product of an economy and the attainable productive capacities of its production sectors by setting M_y in equation (6.6) equal to infinity and then solving equations (6.4) through (6.7) subject to the additional constraint that

$$(6.8) \quad X \leq M_x$$

where M_x is a $(n \times 1)$ matrix of upper bounds reflecting the current productive capacities of the individual production sectors. Potential gross domestic product is then found by summing the value of goods supplied to final markets by the production sectors. Note there are no constraints on the availabilities of labor, fixed business capital or government services. By comparing the output levels of each sector (i.e., their attainable capacities) with their current productive capacities entered in equation (6.8), we can identify which production sector or sectors would be capacity limiting. They will be the production sectors that reached 100 percent of their current productive capacities (i.e., where $X_i = M_{xi}$).

If the availability of labor services prevents existing fixed capital from being fully utilized in the current period and we wish to reflect this in our estimate of potential gross domestic product of the economy, we can solve equations (6.4) through (6.8) subject to the additional constraint that

$$(6.9) \quad R_e \leq M_{re}$$

where M_{re} represents the availability of labor when the labor force (after accounting for frictional unemployment) is fully employed and R_e represents the use of labor services by all production sectors as suggested by their levels of production and the indirect coefficients for this primary input. We can allow for shortages of labor in specific production sectors by changing R_e and M_{re} from single-valued constraints to $(n \times 1)$ matrices reflecting the use and availability of labor services for each production sector.

6.2.1.2: An Example

To illustrate the properties of the planning model described above, let us begin with the hypothetical transactions table presented in Table 6.6. The direct coefficients matrix (i.e., the A matrix in equations (6.1) and (6.5)) for this hypothetical economy would be equal to

$$(6.10) \quad A = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix} = \begin{bmatrix} +0.20 & +0.60 \\ +0.13 & +0.30 \end{bmatrix}$$

where a_{12} , for example, is the amount of output sector 2 needs from sector 1 to produce one more unit of output (i.e., $a_{12} = 60/100$). The $(I - A)$ matrix would therefore be equal to

$$(6.11) \quad (I - A) = \begin{bmatrix} 1 - a_{11} & 1 - a_{12} \\ 1 - a_{21} & 1 - a_{22} \end{bmatrix} = \begin{bmatrix} +0.80 & -0.60 \\ -0.13 & +0.70 \end{bmatrix}$$

The linear programming input-output model given in equations (6.4) through (6.7) can be restated in tableau form as illustrated at the top of page 16.

Table 6.6 -- Transactions table for a hypothetical input-output model.a/

Inputs Outputs		Production sectors		Final demand	Total output
		x_1	x_2		
Production sectors	x_1	30	60	60	150
	x_2	20	30	50	100
Primary inputs	Labor	90	5		
	Capital	10	5		
Total inputs		150	100		

a/ Values reported in 100 million S.P.

	X_1	X_2	Y_1	Y_2	Y_T	Constraints
Objective function	+1.00	+1.00				
X_1	+0.80	-0.60	-1.00			= 0.00
X_2	-0.13	+0.70		-1.00		= 0.00
Y_1			+1.00			$\leq M_{y1}$
Y_2				+1.00		$\leq M_{y2}$
Y_T			+1.00	+1.00	-1.00	= 0.00

where M_{y1} and M_{y2} represent the final demands for the products produced by sectors 1 and 2, respectively. For example, if we let $M_{y1} = 60.00$ and $M_{y2} = 50.00$, total gross output of the economy would be 250 million S.P., of which 150 million S.P. would be produced by sector 1 and 100 million S.P. would be produced by sector 2. By comparing these figures with the economy represented in Table 6.6, we see they are identical. The use of alternative values for M_{y1} and M_{y2} will result in alternative levels of output. For example, if we set $M_{y1} = 75.00$ and $M_{y2} = 60.00$, gross output would be 305.2 million S.P. and sector 1's output would be 184.4 million S.P. while sector 2's output would be 120.8 million S.P.

What would happen if sector 1 was already producing at its maximum potential output of \$150 million S.P.? First, the government can import 34.4 million S.P. of the product produced by sector A. This will both satisfy sector 2's demand for this product as an intermediate good and the final demand for this product by consumers. What are the consequences of not importing the difference between what sector 1 can produce and the output level necessary to meet intermediate and final demand elsewhere in the economy? To address this question, we must now incorporate equation (6.8) into the solution. The linear programming model given by equations (6.4) through (6.8) can be restated in the tableau below

	X_1	X_2	Y_1	Y_2	Y_T	Constraints
Upper bound	150.00	150.00				
Objective function	+1.00	+1.00				
X_1	+0.80	-0.60	-1.00			= 0.00
X_2	-0.13	+0.70		-1.00		= 0.00
Y_1			+1.00			≤ 75.00
Y_2				+1.00		≤ 60.00
Y_T			+1.00	+1.00	-1.00	= 0.00

The above tableau reflects the fact that the maximum potential output of sector 1 and sector 2 is 150 million S.P. Note that the final demands for the output of these sectors are still set at the new levels of 75 and 60 million S.P., respectively. Solving this constrained model, we see that total gross output in the economy with zero imports would be 264.3 million S.P., down some 41 million S.P. from the gross output of 305.2 million S.P. reported above in the unconstrained solution. And while sector 1's output is obviously 150 million S.P., we can show that sector 2's output would be limited to 114.3 million S.P., or 6.5 million S.P. below what it needed to meet the original demand for its products.

To examine the effects of alternative annual production plans and how to allow for them in the model, let us return to the original final demands ($M_{y1} = 60.00$ and $M_{y2} = 50.00$) which we said led to a gross output of 250 million S.P. and a gross domestic product of 110 million S.P. Next, let us assume that the government's planners want to see what the economy's gross domestic product would be if sector 1 produced 140 million S.P. and sector 2 produced 95 million S.P. Further assume that no imports are planned. The linear programming model given in equations (6.4) through (6.8) can be restated once more in tableau form to read

	X_1	X_2	Y_1	Y_2	Y_T	Constraints
Upper bound	140.00	95.00				
Lower bound	140.00	95.00				
Objective function	+1.00	+1.00				
X_1	+0.80	-0.60	-1.00			= 0.00
X_2	-0.13	+0.70		-1.00		= 0.00
Y_1			+1.00			≤ 60.00
Y_2				+1.00		≤ 50.00
Y_T			+1.00	+1.00	-1.00	= 0.00

Solving this constrained model, we would find that gross output would be 235 million S.P. Sector 1 and 2 would produce 140 and 95 million S.P. of output as forced above. This would mean that only 55 million S.P. of products produced by sector 1 and 47.8 million S.P. of products produced by sector 2 would be available for consumers instead of the 60 and 50 million S.P. they desired.

How would we resolve the effects of imports in the above situation? Since net export demands for the products of sector 1 and 2 are reflected in M_{y1} and M_{y2} , if the government imports 5 million S.P. of the products produced by sector 1 and 2.2 million S.P., final demand will be satisfied. This

is equivalent to setting $M_{y1} = 55.00$ and $M_{y2} = 47.8$ in the above solution before solving the model. The government, of course, would only import these products to meet domestic final demand. If part of these outputs were already going to export demand, the government would (i.e., could) reduce the amount being exported rather than go to the trouble and expense of importing like products.

6.2.2: Development of Direct Requirements Table

The first step to developing a linear programming input-output model for an economy is to compute the direct requirements table. Previously referred to as the A matrix, it shows the requirements that each production sector has on output of the other production sectors as well as the primary inputs used in the production process. The normal approach to estimating these direct requirements is to use the information contained in the country's national input-output table.

In Syria, there is no published national input-output table, although intermediate consumption and value added are published for an aggregated collection of production sectors in the Statistical Abstract. All agricultural activities, for example, are reflected in a single column and row in this table (see page 772). Because further disaggregation is required not only for agriculture but related production sectors as well, other sources of information must be pursued.

One source of information used was the commodity balance sheets currently being constructed by the Central Bureau of Statistics. The format adopted for these balance sheets is shown in Table 6.7. The sources of the commodity (i.e., domestic production or imports) and the margins paid by consumers for its transportation and trade are reflected in the "sources of commodity" section. The uses of the commodity by other production sectors (i.e., intermediate consumption) and the final disposition of these goods in domestic (i.e., public and private consumption, changes in inventories and capital formation) and foreign (i.e., exports) markets are reflected in the "uses of commodity" section. Thus, these commodity balance sheets provide detailed information on the rows of an input-output transactions table for each of the commodities produced in agriculture. Unfortunately, these commodity balance sheets are available for only the agricultural and mining and quarrying sectors.

Another source of information when disaggregating the agriculture sector is the data on expenditures given by cost of production studies. Two such sources of the information needed to complete Table 6.8 for crops are the expenditures approved by the High Committee on Agriculture in the annual production plans and the cost of production budgets prepared by the Economics Division of the Ministry of Agriculture and Agrarian Reform (MAAR). These sources of information help us in identifying expenditures for inputs and operating surplus for each crop, and hence the entries in the columns of an input-output transactions table. Data from the World Bank study Appraisal of First Livestock Development Project: Syria on feed requirements for

Table 6.7 -- Sample commodity balance sheet.

Commodity _____		
Sources of commodity:	Quantity	Value ^{a/}
1. total production -----	_____	_____
2. domestic margin -----	_____	_____
3. imports -----	_____	_____
4. imports margin -----	_____	_____
total sources -----	_____	_____
Uses of commodity:		
Intermediate consumption by:		
5. _____	_____	_____
6. _____	_____	_____
7. _____	_____	_____
8. _____	_____	_____
9. _____	_____	_____
total intermediate consumption -----	_____	_____
10. exports -----	_____	_____
11. other final uses -----	_____	_____
total uses -----	_____	_____
Gross output values in producers' prices -----		
Gross output valued in purchasers' prices -----		

^{a/} Value expressed in million S.P.

Table 6.8 -- Costs of production for _____ .

Item	Value ^{a/}
Intermediate consumption:	
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____
6. _____	_____
7. _____	_____
8. _____	_____
9. _____	_____
10. _____	_____
Total expenditures on intermediate goods	_____
Wages and salaries -----	_____
Depreciation -----	_____
Operating surplus -----	_____
Indirect business taxes (net) -----	=====
Total -----	_____

^{a/} Value expressed in S.P. per donum.

different categories of livestock and other sources of data were used for the livestock commodities.

Given this information, we must next compute the direct requirements for inputs per Syrian Pound of gross output. This is done by dividing the expenditures for each input category by the value of gross output for a given commodity. The coefficients derived in this manner thus represent the technical coefficients in the A matrix in equations (6.1) through (6.3) and equation (6.5). These coefficient values are located in the technical files of the ASA Project, and are also available from the author. The form used in computing these values is reported in table 6.9.

6.2.3: Sectoring of the Model

There are 55 production sectors included in the linear programming input-output model developed in this study which produce 53 different products. Of this total, 36 sectors are involved in the production of raw agricultural products. The identification of the production sectors incorporated into this planning model and the variable names assigned to them in the model are reported in Table 6.10.

6.2.4: Application and Further Development

It is important that the potential uses and misuses of the planning model developed in this study be clearly understood. It is also vital that its users understand how to further disaggregate the model and update the technical coefficients and capacity constraints as new information becomes available or as different assumptions regarding technological change and capital formation are made.

6.2.4.1: Application of the Model

The most appropriate use of the planning model developed in this study lies in the area of comparative analysis. It should not be used to make point projections of future sector output levels for some specific target date. Rather, this model is best used to examine a range of potential outcomes under different sets of assumptions and then comparing the differences between the model's solution values. For example, we can use this planning model to:

- (1) demonstrate the effect that alternative versions of the annual production plan will have upon the utilization of capacity in each production sector, and
- (2) determine which sectors are "capacity limiting", how much additional capacity is needed to meet the demand for its goods or service, and how much imports will have to increase to satisfy final demand in the current period.

Table 6.9 -- Direct requirements per Syrian Pound of gross output.

Sector _____	
Intermediate goods and services:	coefficient
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____
6. _____	_____
7. _____	_____
8. _____	_____
9. _____	_____
10. _____	_____
11. _____	_____
12. _____	_____
13. _____	_____
14. _____	_____
15. _____	_____
16. _____	_____
17. _____	_____
18. _____	_____
19. _____	_____
20. _____	_____
Total intermediate consumption -----	_____
Wages and salaries -----	_____
Other value added -----	_____
Total direct requirements -----	_____

Table 6.10 -- Sectors in the Syria planning model.

Sector no.	Name	Description
1	WHMXIR	irrigated wheat (Mexican variety)
2	WHLCIR	irrigated wheat (local variety)
3	WHLCRF	rainfed wheat (local variety)
4	BRLYRF	rainfed barley
5	OATSRF	rainfed oats
6	CORNRF	rainfed corn
7	MILTRF	rainfed millet
8	RICEIR	irrigated rice
9	LNTLRF	rainfed lentils
10	CHKPRF	rainfed chick peas
11	DBBNIR	irrigated dry broad beans
12	RVHCRF	rainfed rambling vetch
13	VTCHRF	rainfed bitter vetch
14	ODLGRF	rainfed other dry legumes
15	TOMTIR	irrigated tomatoes
16	POTAIR	irrigated potatoes
17	DONNIR	irrigated dry onions
18	OFVGIR	irrigated other fresh vegetables
19	CTTNIR	irrigated cotton
20	SGBTIR	irrigated sugar beets
21	TBCOIR	irrigated tobacco
22	SNFLIR	irrigated sunflowers
23	SESMIR	irrigated sesame
24	GNUTIR	irrigated groundnuts
25	OICPIR	irrigated other industrial crops
26	FCGZRF	rainfed feed crops (grazing)
27	FRUTRF	rainfed fruit crops
28	OCRPRF	rainfed crops not elsewhere classified
29	POLTRY	chickens and eggs
30	SHEEPF	sheep fattening
31	SHEEPB	sheep breeding and wool
32	CCABUF	cows, calves and buffalos
33	GOATS	goats and hair
34	OTLVSK	other livestock and livestock prices not elsewhere classified
35	MILKAP	milk and milk by-products
36	FOREST	forestry
37	ANFEED	animal feed processing
38	FODBEV	food and beverages
39	TOBCPR	tobacco processing
40	TXCLHR	textiles, clothing and leather
41	WOODFR	wood and furniture

Table 6.10 -- continued.

Sector no.	Name	Description
42	PPPUBL	paper, printing and publishing
43	CHEMCL	chemicals (including fertilizer)
44	NMNPRD	non-mineral products
45	BSCMTL	basic metals
46	ELGWTR	electricity, gas and public water
47	CONSTR	construction
48	MNGQAR	mining and quarrying
49	RESTHL	restaurants and hotels
50	TTSTCM	trade, transportation, storage and communi- cation
51	AGCPBK	agricultural cooperative bank
52	OTHRFN	other financing
53	INSURE	insurance
54	REALBS	real estate and business services
55	CSPSER	community, social and personal services

Given projected final demand for each sector's products based upon projections of domestic consumption needs, its plans for exporting these products, and the country's demand for strategic reserves of grain or other commodities, the model can identify which production plan will enable the economy to best meet these targets. The model can also be used to show which production sectors if any would be capacity limiting given their existing productive capacity and how much their capacity will have to increase before these sectors no longer bottleneck the flow of products to final demand.

Modeling alternative production plans for agriculture can be accomplished by forcing the crop production activities to enter the solution at the levels specified in the plan through the use of upper and lower bounds on these activities. Upper bounds can be used to constrain the livestock and non-agricultural production sectors to reflect their existing productive capacities. These bounds can be found by asking firms in these sectors or their organizations what their current output level is and what percent this is of their existing productive or manufacturing capacity.

6.2.4.2: Further Development of the Model

The approach taken to developing this planning model is to use the best information available. Our major goal in this study was to get this model operational so that we could illustrate the types of analyses it can perform. As additional data are made available, we can easily modify the technical coefficients and capacity constraints in the model.

Priority should be given to examining the direct requirements used for the crop and livestock production sectors in the model. In addition, irrigated and rain fed options should be allowed for other crops besides wheat where applicable. Further emphasis should also focus on disaggregating the food processing and beverage (FODBEV) sector to more clearly track the effects of production plans for specific agricultural commodities.

Once the desired disaggregation of the non-agricultural sectors has been achieved, the next step is to survey the managers of firms or government agencies associated with these sectors to determine their current productive capacities. Questions about current output and the fraction of maximum potential output this represents would allow us to determine their productive capacity. Once these values are known, we will be in a better position to assess the feasibility of alternative production plans for the agricultural and non-agricultural sectors in the short run and the added capacity needed to meet projected final demand for goods and services in 1985 and beyond. More will be said about this later in sections 6.3 and 6.4 of this volume.

6.3: PROJECTIONS TO 1985

The purpose of this section is to discuss the assumptions underlying the use of the planning model developed in this study to project the output levels required of each production sector to meet alternative projections of 1985 final demand for their goods and services.

6.3.1: Modeling Assumptions

There are basically two assumptions that underly the use of the planning model developed in this study: (1) the nature of the production processes in these sectors will remain as we know them and that the productive capacities of these production sectors will not limit their ability to meet the intermediate and final demands for their goods and services, and (2) we know what final demand (i.e., consumption, net exports, capital formation, inventory change and government demands for goods and services) will be in the target year.

Little can be done to alleviate the effects of the first assumption within the time and resource limitations of this study. This would entail projecting the direct requirements for each input by each sector as well as their productive capacities to 1985. We can alleviate the effects of the second assumption, however, by examining the effects of alternative assumptions about the makeup of final demand in 1985. Three scenarios to 1985 will be examined in this study. The first scenario assumes an increase in final demand for agricultural products consistent with Alternative I projected by Carl Shafer (see Table 1.29). Final demand for non-agricultural products in this scenario is consistent with the income and population projections for Alternative I in Table 28 and an elasticity of demand for these products of one. This scenario will be referred to hereafter as Alternative I. The second sceanrio examined in this section assumes a final demand for agricultural products consistent with Alternative II projected by Shafer in Table 1.29. Final demand for non-agricultural goods and services will once again be consistent with the income and population projections under Alternative II in Table 1.28 and an elasticity of one for these products. This scenario will be referred to hereafter as Alternative II. The final scenario to 1985 is based upon the final demand for agricultural products projected by Shafer for Alternative III in Table 1.29. And the final demand for non-agricultural products is consistent with the income and population projects for Alternative III in Table 1.28. This scenario will be termed Alternative III.

Each of these scenarios will assume no imports and no exports. Thus, the output figures will show what each production sector must produce to meet these alternative levels of final demand for agricultural and non-agricultural goods and services.

Table 6.11 -- Alternative I Forecast of Gross Output and Final Demand in 1985.

Line No.	Good or Service	Total Output	Final Demand
Million Syrian Pounds			
1.	Wheat	1,054.92	821.76
2.	Barley	349.77	3.42
3.	Oats	2.18	0.00
4.	Corn	19.29	0.00
5.	Millet	17.99	3.00
6.	Rice	231.26	229.23
7.	Lentils	157.40	129.83
8.	Chick peas	50.37	30.56
9.	Dry broad beans	23.35	17.62
10.	Rambling vetch	20.83	0.00
11.	Bitter vetch	61.86	1.61
12.	Other dry legumes	34.87	13.35
13.	Tomatoes	366.29	286.88
14.	Potatoes	241.99	148.77
15.	Dry onions	201.64	94.73
16.	Other fresh vegetables	426.12	387.64
17.	Cotton	1,075.73	66.03
18.	Sugar beets	100.99	0.00
19.	Tobacco	62.33	1.41
20.	Sun flowers	0.87	0.30
21.	Sesame	167.63	0.30
22.	Ground nuts	6.96	0.40
23.	Other industrial crops	8.59	4.39
24.	Grazing	18.19	0.00
25.	Fruits	4,615.37	4,022.20
26.	Other crops	212.89	183.40
27.	Poultry	600.60	431.33
28.	Sheep fattening	901.99	92.12
29.	Sheep breeding	1,213.26	30.63
30.	Cows, calves and buffalo	728.48	68.98
31.	Goats	156.94	20.03
32.	Other livestock products	312.01	77.60
33.	Milk and milk products	893.82	632.90
34.	Forestry	141.95	0.00
35.	Animal feed	456.38	0.00
36.	Food and beverages	5,083.44	4,202.80
37.	Tobacco products	344.06	341.62
38.	Textiles, clothing and leather	4,303.89	3,004.50
39.	Wood and furniture	678.16	229.50
40.	Paper, printing and publishing	1,002.07	134.90
41.	Chemicals and fertilizer	6,679.49	292.57
42.	Non-mineral products	3,438.36	2,442.20
43.	Basic metal products	8,511.48	849.68
44.	Electricity, gas and water	739.84	322.35
45.	Construction	2,939.14	2,762.80
46.	Mining and quarrying	6,158.33	5,523.80
47.	Restaurants and hotels	2,666.40	2,666.40
48.	Trade, transportation and communication	11,413.44	10,667.40
49.	Agricultural cooperative bank	400.74	166.43
50.	Other financing	339.04	332.86
51.	Insurance	350.00	166.43
52.	Real estate and business services	3,880.71	2,661.20
53.	Community, social and personal services	1,118.57	676.24
	Total	75,432.28	45,244.70

Table 6.12 -- Output and hectares needed in 1985 for selected commodities under Alternative I.

Line No.	Commodity	(1) Value of gross output Mill S.P.	(2) 1974-76 Price per ^{a/} k.g.	(3) Quantity of gross output Mill. k.g.	(4) 1974-76 ave. yield per irrigated hectare ^{c/}	(5) 1974-76 ave. yield per non-irrigated hectare ^{c/}	(6) Number of irrigated hectares needed ^{d/}	(7) Number of non-irrigated hectares needed ^{e/}
1	Wheat	1,054.92	.48	2,197.75	2,197	889	1,000,341	2,472,160
2	Barley	349.77	.38	920.45	1,647	797	558,863	1,154,893
5	Millet	17.99	.50	35.98	1,420	573	25,338	62,792
6	Rice	231.26	1.41	164.09	f/	f/	--	--
7	Lentils	157.40	.99	158.99	1,267	848	125,485	187,488
8	Chick peas	50.37	.92	54.75	1,166	629	46,955	87,043
13	Tomatoes	366.29	.65	563.52	20,145	4,663	27,973	120,849
14	Potatoes	241.99	.30	302.49	13,856	9,348	21,831	32,359
15	Dry onions	201.64	.50	403.28	18,607	6,373	21,674	63,279
17	Cotton	1,075.73	1.34	802.78	2,210	377	363,249	2,129,390
18	Sugar beets	100.99	.16	631.19	24,924	21,837	25,325	28,905
19	Tobacco	62.33	1.07	58.25	1,577	648	36,937	89,892

^{a/} Source: Central Bureau of Statistics. Expressed in Syrian Pounds.

^{b/} Equals column (1) divided by column (2).

^{c/} Source: Ministry of Agriculture and Agrarian Reform. The yield for wheat represents the average yield on local and Mexican wheat varieties.

^{d/} Equals column (3) divided by column (4).

^{e/} Equals column (3) divided by column (5).

^{f/} Not available.

6.3.2: Alternative I Projection

Table 6.11 projects the gross output for the Syrian economy and each production sector needed to meet the final demands associated with Alternative I. Total gross output would be 75.5 billion S.P. in 1985 while gross domestic product would be 45.2 billion S.P. under this scenario. The agricultural sector would supply 7,794 million S.P. to final demand, which represents about 17 percent of gross domestic product valued in producers' prices. Gross output of fruits would be 4.6 billion S.P., some 32 percent of total agricultural output. Gross output of livestock and livestock products must be 4.8 billion S.P. to meet final demand in 1985, or approximately 33 percent of total agricultural production. Remember that these output levels represent the levels of production required by the sectors in the Syrian economy to meet projected final demand excluding net export demand. If these sectors will not have sufficient capacity to produce at these levels, the government will have to import goods if it desires to satisfy final demand.

To better understand the requirements on agriculture under this scenario, the number of hectares required to meet intermediate and final demand for the major crop commodities are calculated in Table 6.12. The values reported in Column (1) correspond to the gross output levels previously reported in Table 6.11 while the average prices reported in column (2) were calculated from data published in the Statistical Abstract by the Central Bureau of Statistics. The quantity of gross output reported in column (3) is found by dividing column (1) by column (2). Column (6) then shows the number of irrigated hectares that would be required to produce these quantities if the average yields recorded during 1974-76 period were realized. For example, 558,863 ha. would have to be devoted to barley if the total intermediate and final demands for barley are to be met in 1985 on irrigated lands. If non-irrigated lands were used instead to satisfy projected demand, column (7) shows that 1,154,893 ha. would be needed. Some combination of irrigated and non-irrigated production is of course possible. Similar calculations are made for other major commodities. Further technological advances leading to higher yields would lower these requirements for land. Additional irrigated hectares and/or higher yields will be needed if Syria hopes to export these crops.

6.3.3: Alternative II Projection

The 1985 gross national output and domestic product of the Syrian economy projected under the Alternative II scenario are reported along with each sector's contribution in Table 6.13. Gross national output must only be 61.7 billion S.P. in 1985 to meet the final demands placed upon its goods and services, some 13.8 billion S.P. or 18 percent below the amount required under Alternative I. The reason for this is that desired gross domestic product would be 8.3 billion S.P. or 18 percent below the amount demanded under the first scenario.

Table 6.13 -- Alternative II Forecast of Gross Output and Final Demand in 1985.

Line No.	Good or Service	Total Output	Final Demand
Million Syrian Pounds			
1.	Wheat	1,067.91	858.24
2.	Barley	282.65	3.42
3.	Oats	1.76	0.00
4.	Corn	15.51	0.00
5.	Millet	15.16	3.00
6.	Rice	212.64	211.50
7.	Lentils	141.14	119.19
8.	Chick peas	65.16	44.58
9.	Dry broad beans	20.89	16.07
10.	Rambling vetch	17.62	0.00
11.	Bitter vetch	51.98	1.47
12.	Other dry legumes	30.29	12.18
13.	Tomatoes	331.41	264.82
14.	Potatoes	227.50	140.07
15.	Dry onions	185.91	87.50
16.	Other fresh vegetables	393.25	358.06
17.	Cotton	858.13	52.31
18.	Sugar beets	80.59	0.00
19.	Tobacco	49.57	1.28
20.	Sun flowers	0.75	0.30
21.	Sesame	133.54	0.30
22.	Ground nuts	5.63	0.40
23.	Other industrial crops	7.47	4.10
24.	Grazing	15.73	0.00
25.	Fruits	4,282.90	3,738.20
26.	Other crops	184.33	160.50
27.	Poultry	445.15	313.20
28.	Sheep fattening	720.20	75.30
29.	Sheep breeding	982.12	25.00
30.	Cows, calves and buffalo	596.56	56.40
31.	Goats	219.41	98.10
32.	Other livestock products	259.65	73.00
33.	Milk and milk products	741.64	533.90
34.	Forestry	113.42	0.00
35.	Animal feed	361.42	0.00
36.	Food and beverages	4,047.93	3,331.30
37.	Tobacco products	272.72	270.78
38.	Textiles, clothing and leather	3,435.88	2,381.50
39.	Wood and furniture	541.60	181.91
40.	Paper, printing and publishing	793.11	106.92
41.	Chemicals and fertilizer	5,507.63	231.90
42.	Non-mineral products	2,726.29	1,935.70
43.	Basic metal products	6,906.29	673.47
44.	Electricity, gas and water	607.01	255.50
45.	Construction	2,330.26	2,189.80
46.	Mining and quarrying	4,921.04	4,378.30
47.	Restaurants and hotels	2,113.50	2,113.50
48.	Trade, transportation and communication	9,074.40	8,455.20
49.	Agricultural cooperative bank	341.87	131.92
50.	Other financing	674.37	263.84
51.	Insurance	280.67	131.92
52.	Real estate and business services	3,081.76	2,109.30
53.	Community, social and personal services	891.72	536.00
Total		61,667.05	36,931.15

Table 6.14 --- Output and hectares needed in 1985 for selected commodities under Alternative II.

Line No.	Commodity	(1) Value of gross output Mill. S.P.	(2) 1974-76 Price per k.g. <u>a</u> /	(3) Quantity of gross output Mill. k.g. <u>a</u> /	(4) 1974-76 ave. yield per irrigated hectare <u>c</u> /	(5) 1974-76 ave. yield per non-irrigated hectare <u>c</u> /	(6) Number of irrigated hectares needed <u>d</u> /	(7) Number of non-irrigated hectares needed <u>e</u> /
1	Wheat	1,067.91	.48	2,224.81	2,197	889	1,012,659	2,502,598
2	Barley	282.65	.38	743.82	1,647	797	451,619	933,275
5	Millet	15.16	.50	30.32	1,420	573	21,352	52,914
6	Rice	212.64	1.41	150.81	<u>f</u> /	<u>f</u> /	---	---
7	Lentils	141.14	.99	142.57	1,267	848	112,522	168,125
8	Chick peas	65.16	.92	70.83	1,166	629	60,743	112,607
13	Tomatoes	331.41	.65	509.86	20,145	4,663	25,310	109,342
14	Potatoes	227.50	.80	284.38	13,856	9,348	20,524	30,422
15	Dry onions	185.91	.50	371.82	18,607	6,373	19,983	58,343
17	Cotton	858.13	1.34	640.40	2,210	377	289,772	1,698,674
18	Sugar beets	80.59	.16	503.69	24,924	21,837	20,209	23,066
19	Tobacco	49.57	1.07	46.33	1,577	648	29,377	71,497

a/ Source: Central Bureau of Statistics. Expressed in Syrian Pounds.

b/ Equals column (1) divided by column (2).

c/ Source: Ministry of Agriculture and Agrarian Reform. The yield for wheat represents the average yield on local and Mexican wheat varieties.

d/ Equals column (3) divided by column (4).

e/ Equals column (3) divided by column (5).

f/ Not available.

Total output of the agricultural sector would have to be 12.8 billion S.P. in 1985 under Alternative II as compared to 14.5 billion S.P. under Alternative I. Wheat production will be about 13 million S.P. higher under Alternative II as prescribed by Shafer (see Table 1.29). Fruit output would be about 34 percent of the total value of agricultural production while livestock activities would represent 3.96 million S.P. or 31 percent of this total. Looking at Table 6.14, we see that approximately 1 million hectares would be required to produce the volume of wheat demanded if irrigation practices were used while 2.5 million hectares would be needed if irrigation was not used. In 1976, 1.35 million of the 1.59 million hectares planted to wheat were not irrigated, which led to total production of 1.79 billion k.g. of wheat. Column (3) in Table 6.14 shows that 2.24 billion k.g. of wheat is needed to satisfy intermediate and final demand for wheat in 1985 under the Alternative II scenario. Elsewhere, 289,772 hectares of land would be needed for cotton production if irrigation was used to produce the volume required by other production sectors and domestic consumers. Approximately 1.7 million acres would be needed if irrigation was not used. The land requirements for the other major crops produced in Syria are also reported in Table 6.14.

6.3.4: Alternative III Projection

The final scenario assumes no increase in expenditures per capita by domestic consumers of Syrian goods and services and an increase in population of 45 percent between 1975 and 1985 (see Table 1.28). Looking at Table 6.15, we see that gross national output would have to be only 49.2 billion S.P. as compared to 61.7 billion S.P. under Alternative II and 75.5 billion S.P. under Alternative I. This is because final demand of 29.4 billion S.P. under Alternative III was the lowest of the three scenarios examined.

Total agricultural output would represent about 22 percent of the total value of gross national output in 1985 under this scenario, or 10.8 billion S.P. This compares to 12.8 billion S.P. under Alternative II and 14.5 billion S.P. under Alternative I. Fruit production would represent 35.2 percent of the total value of agricultural production while livestock products would represent 28.5 percent.

Table 6.16 shows that 973,063 hectares of irrigated wheat would be needed to meet intermediate and final demand under Alternative III. This is down from the one million plus hectares needed under Alternatives I and II. About 2.4 million hectares would be needed if irrigation was not employed. The second biggest user of land would be cotton which would require 226,385 hectares if irrigation is used and 1.37 million hectares if it is not. The land required by the remaining major crops produced in Syria are identified in Table 6.16.

Table 6.15 -- Alternative III Forecast of Gross Output and Final Demand in 1985.

Line No.	Good or Service	Total Output	Final Demand
Million Syrian Pounds			
1.	Wheat	1,026.20	842.40
2.	Barley	218.57	3.82
3.	Oats	1.35	0.00
4.	Corn	11.91	0.00
5.	Millet	12.31	3.00
6.	Rice	192.64	191.76
7.	Lentils	137.70	120.60
8.	Chick peas	63.61	45.11
9.	Dry broad beans	19.55	15.42
10.	Rambling vetch	13.75	0.00
11.	Bitter vetch	40.75	1.41
12.	Other dry legumes	26.12	11.69
13.	Tomatoes	291.40	236.72
14.	Potatoes	210.27	129.63
15.	Dry onions	165.84	78.17
16.	Other fresh vegetables	351.05	319.87
17.	Cotton	670.41	40.61
18.	Sugar beets	62.75	0.00
19.	Tobacco	38.52	1.03
20.	Sun flowers	0.65	0.30
21.	Sesame	104.09	0.30
22.	Ground nuts	4.48	0.40
23.	Other industrial crops	6.27	3.62
24.	Grazing	12.36	0.00
25.	Fruits	3,807.31	3,326.90
26.	Other crops	156.48	137.60
27.	Poultry	308.06	208.58
28.	Sheep fattening	561.92	59.56
29.	Sheep breeding	771.02	19.80
30.	Cows, calves and buffalo	470.40	44.60
31.	Goats	173.42	77.60
32.	Other livestock products	203.19	57.80
33.	Milk and milk products	587.71	425.90
34.	Forestry	88.51	0.00
35.	Animal feed	270.34	0.00
36.	Food and beverages	3,153.25	2,586.40
37.	Tobacco products	211.74	210.23
38.	Textiles, clothing and leather	2,688.04	1,848.90
39.	Wood and furniture	421.96	141.23
40.	Paper, printing and publishing	612.65	83.01
41.	Chemicals and fertilizer	4,442.86	180.04
42.	Non-mineral products	2,114.77	1,502.90
43.	Basic metal products	5,479.92	522.88
44.	Electricity, gas and water	487.01	198.37
45.	Construction	1,809.65	1,700.20
46.	Mining and quarrying	3,849.87	3,399.30
47.	Restaurants and hotels	1,640.80	1,640.80
48.	Trade, transportation and communication	7,057.11	6,564.60
49.	Agricultural cooperative bank	282.71	102.42
50.	Other financing	530.57	204.84
51.	Insurance	218.66	102.42
52.	Real estate and business services	2,392.79	1,637.60
53.	Community, social and personal services	694.04	416.15
	Total	49,169.37	29,446.49

Table 6.16 -- Output and hectares needed in 1985 for selected commodities under Alternative III.

Line No.	Commodity	(1) Value of gross output Mill. S.P.	(2) 1974-76 Price per k.g. <u>a</u> /	(3) Quantity of gross output Mill. k.g. <u>a</u> /	(4) 1974-76 ave. yield per irrigated hectare <u>c</u> /	(5) 1974-76 ave. yield per non-irrigated hectare <u>c</u> /	(6) Number of irrigated hectares needed <u>d</u> /	(7) Number of non-irrigated hectares needed <u>e</u> /
1	Wheat	1,026.20	.48	2,137.92	2,197	889	973,063	2,404,359
2	Barley	218.57	.38	575.18	1,647	797	349,229	721,681
5	Millet	12.31	.50	24.62	1,420	573	17,338	42,967
6	Rice	192.64	1.41	136.62	f/	f/	--	--
7	Lentils	137.70	.99	139.09	1,267	848	109,779	164,021
8	Chick peas	63.61	.92	69.14	1,166	629	59,297	109,921
13	Tomatoes	291.40	.65	448.31	20,145	4,663	22,254	96,142
14	Potatoes	210.27	.80	262.84	13,856	9,348	18,969	28,117
15	Dry onions	165.84	.50	331.68	18,607	6,373	17,826	52,045
17	Cotton	670.41	1.34	500.31	2,210	377	226,385	1,327,082
18	Sugar beets	62.75	.16	392.19	24,924	21,837	15,735	17,960
19	Tobacco	38.52	1.07	36.00	1,577	648	22,828	55,556

a/ Source: Central Bureau of Statistics. Expressed in Syrian Pounds.

b/ Equals column (1) divided by column (2).

c/ Source: Ministry of Agriculture and Agrarian Reform. The yield for wheat represents the average yield on local and Mexican wheat varieties.

d/ Equals column (3) divided by column (4).

e/ Equals column (3) divided by column (5).

f/ Not available.

6.3.5: Summary

Alternative I, which builds upon the 62.5 percent increase in per capita expenditures and 44.9 percent increase in population identified by Shafer in Table 1.28, places the greatest demands upon the Syrian economy. Assuming no exports of Syrian products, the production sectors must produce 75.5 billion S.P. of goods and services if it is to satisfy intermediate and final demand. At the opposite end of the spectrum, only 49.2 billion S.P. of goods and services would be needed under Alternative III. If the Syrian government desires to export any of these commodities, the final demands assumed under each of the scenarios examined in this study must be expanded accordingly. And if the Syrian economy does not have the capacity to meet the intermediate and final demands projected under Alternative I-III, the government will have to import goods to satisfy these demands.

6.4: EFFECTS OF CAPACITY SHORTAGES

The purpose of this section is to illustrate the effects that the capacity of specific sectors to provide goods and services can have upon the ability of the Syrian economy to meet the 1985 output level projected in section 6.3. The scenario putting the greatest strain on the Syrian economy was shown to be Alternative I. Instead of assuming that each production sector in Syria can produce the goods and services needed to meet intermediate and final demand in 1985, this section shows the effects that the inability of a critical sector to produce at the output levels indicated in Table 6.11 will have on the rest of the country's economy.

6.4.1: Specification of Scenario

The assumption is made in this scenario that the food and beverage sector (FODBEV), which processes many of the products produced by the agricultural production sectors, can only produce at 75 percent of output level reported in Table 6.11. To program this scenario, an upper bound of 3,812.50 million S.P. was placed on the FODBEV sector in the planning model. The remainder of the model is identical to the formulation used for Alternative I in the previous section. The planning model will show how the Syrian economy can maximize its gross output in light of this constraint.

6.4.2: Chemical Shortage

The maximum gross output possible in the Syrian economy if the food and beverage sector is limited to 3.8 billion S.P. is shown in Table 6.17 to be 72.8 billion S.P. Note that this output level is 2.7 billion below the Alternative I gross output level of 75.5 billion S.P. in the unconstrained solution reported here and in Table 6.11. This is approximately one billion S.P. greater than the shortfall in food and beverage production caused by the FODBEV sector reaching its upper limit of 3,812.50 million S.P. in this scenario.

Table 6.17 — Effects of a 75 percent reduction in the availability of chemical products on Alternative I projection to 1985.

Line No.	Good or Service	Total Output		Final Demand	
		unconstrained	constrained	unconstrained	constrained
- Million Syrian Pounds -					
1.	Wheat	1,054.92	1,020.81	821.76	821.76
2.	Barley	349.77	292.46	3.42	3.42
3.	Oats	2.18	1.82	0.00	0.00
4.	Corn	19.29	16.08	0.00	0.00
5.	Millet	17.99	16.02	3.00	3.00
6.	Rice	231.26	231.26	229.23	229.23
7.	Lentils	157.40	150.57	129.83	129.83
8.	Chick peas	50.37	49.67	30.56	30.56
9.	Dry broad beans	23.35	23.35	17.62	17.62
10.	Rambling vetch	20.83	17.99	0.00	0.00
11.	Bitter vetch	61.96	53.86	1.61	1.61
12.	Other dry legumes	34.87	31.79	13.85	13.35
13.	Tomatoes	366.29	353.08	286.88	286.88
14.	Potatoes	241.99	242.00	148.77	148.77
15.	Dry onions	201.64	201.47	94.73	94.73
16.	Other fresh vegetables	426.12	426.09	387.64	387.64
17.	Cotton	1,075.73	1,054.35	66.03	66.03
18.	Sugar beets	100.99	76.62	0.00	0.00
19.	Tobacco	62.33	62.33	1.41	1.41
20.	Sun flowers	0.87	.73	0.30	0.30
21.	Sesame	167.63	125.79	0.30	0.30
22.	Ground nuts	6.96	5.32	0.40	0.40
23.	Other industrial crops	8.59	8.58	4.39	4.39
24.	Grazing	18.19	15.54	0.00	0.00
25.	Fruits	4,615.37	4,603.74	4,022.20	4,022.20
26.	Other crops	212.89	207.38	183.40	183.40
27.	Poultry	600.60	569.97	431.33	431.33
28.	Sheep fattening	901.99	699.47	92.12	92.12
29.	Sheep breeding	1,213.26	1,046.78	30.63	30.63
30.	Cows, calves and buffalo	728.48	644.51	68.98	68.98
31.	Goats	156.94	142.39	20.03	20.03
32.	Other livestock products	312.01	254.20	77.60	77.60
33.	Milk and milk products	893.82	830.26	632.90	632.90
34.	Forestry	141.95	140.91	0.00	0.00
35.	Animal feed	456.38	401.04	0.00	0.00
36.	Food and beverages	5,083.44	3,812.25	4,202.80	2,999.10
37.	Tobacco products	344.06	344.05	341.62	341.62
38.	Textiles, clothing and leather	4,303.89	4,290.31	3,004.50	3,004.50
39.	Wood and furniture	678.16	671.73	229.50	229.50
40.	Paper printing and publishing	1,002.07	932.62	134.90	134.90
41.	Chemicals and fertilizer	6,679.49	6,593.37	292.57	292.57
42.	Non-mineral products	3,438.36	3,415.72	2,442.20	2,442.20
43.	Basic metal products	8,511.48	8,443.39	849.68	849.68
44.	Electricity, gas and water	739.84	718.71	322.35	322.35
45.	Construction	2,939.14	2,938.11	2,762.80	2,762.80
46.	Mining and quarrying	6,158.33	6,143.42	5,523.80	5,523.80
47.	Restaurants and hotels	2,666.40	2,666.40	2,666.40	2,666.40
48.	Trade, transportation and communication	11,413.44	11,341.01	10,667.40	10,601.27
49.	Agricultural cooperative bank	400.74	389.04	166.43	166.43
50.	Other financing	839.04	827.77	332.86	332.86
51.	Insurance	350.00	343.50	166.43	166.43
52.	Real estate and business services	3,880.71	3,843.17	2,661.20	2,661.20
53.	Community, social and personal services	1,118.57	1,100.10	676.24	676.24
	Total	75,482.28	72,832.92	45,244.70	43,974.87

Which sectors are affected the most by this capacity constraint? The answer to this question is those sectors in agriculture whose product goes to both intermediate and final demand. For example, barley production would fall from 349.77 million S.P. to 292.46 million S.P. if the FODBEV sector's productive capacity was 25 percent less than originally projected. Other sectors like the rice production sector (RICEIR) whose production goes principally to final demand in Syria would not be affected by a reduction of the productive capacity of the FODBEV sector. Thus, it is important that government planners in Syria account for potential bottlenecks in the supply of agricultural products when developing their production and investment plans for the agricultural and non-agricultural sectors.

6.4.3: Summary

This section shows the effects that capacity constraints on just one sector can have upon the entire economy in this highly interdependent economy. As was pointed out earlier in this report, the managers and/or government agencies associated with the production sectors in the Syrian economy should be surveyed to determine the existing capacity and planned expansion of the production sectors in the economy. Only after this is done are we in the best position to evaluate the economy's capacity to meet the final demand for its goods and services.

6.5: PROJECTIONS TO 2000

Earlier in Section 6.3 we presented projections of gross output for the Syrian economy to 1985. The purpose of this section is to extend these projections to the year 2000. The same modeling assumptions made in subsection 6.3.1 will be used here as well. The only exception is that the final demands under Alternatives I through III are now updated for 2000 using the projections of expenditures per capita made by Shafer in Tables 1.28 and 1.29.

6.5.1: Alternative I Projection

Table 6.18 presents the projections of gross output for the Syrian economy and each sector required to meet the final demands associated with Alternative I. Total gross output would have to be 171 billion S.P. to meet a final demand of 102.6 billion S.P. for the goods and services of Syria's production sectors. Total agricultural output would have to be 28.8 billion S.P., or 16.8 percent of the total value of gross national output. Production of livestock and livestock products would have to be 38.4 percent of the value of gross agricultural output, or 11.1 billion S.P. Fruit production, on the other hand, must account for an additional 27.4 percent of the value of agricultural output, or 7.9 billion S.P.

Table 6.18 -- Alternative I Forecast of Gross Output and Final Demand in 2000.

Line No.	Good or Service	Total Output	Final Demand
Million Syrian Pounds			
1.	Wheat	1,564.01	1,111.68
2.	Barley	317.14	4.94
3.	Oats	5.13	0.00
4.	Corn	45.26	0.00
5.	Millet	39.80	4.50
6.	Rice	415.12	411.72
7.	Lentils	246.07	181.09
8.	Chick peas	122.96	75.36
9.	Dry broad beans	39.02	27.34
10.	Rambling vetch	43.86	0.00
11.	Bitter vetch	143.40	2.50
12.	Other dry legumes	69.01	20.72
13.	Tomatoes	674.60	503.39
14.	Potatoes	424.58	260.13
15.	Dry onions	355.43	166.23
16.	Other fresh vegetabels	749.36	680.19
17.	Cotton	2,479.22	110.49
18.	Sugar beets	237.73	0.00
19.	Tobacco	146.87	2.56
20.	Sun flowers	1.83	0.50
21.	Sesame	394.81	0.50
22.	Ground nuts	16.25	0.80
23.	Other industrial crops	17.94	8.12
24.	Grazing	42.84	0.00
25.	Fruits	7,891.69	6,849.30
26.	Other crops	388.59	321.82
27.	Poultry	1,502.70	1,096.30
28.	Sheep fattening	2,079.45	170.89
29.	Sheep breeding	2,706.86	50.60
30.	Cows, calves and buffalo	1,625.16	177.76
31.	Goats	557.20	240.06
32.	Other livestock products	707.68	155.21
33.	Milk and milk products	1,889.63	1,274.67
34.	Forestry	334.09	0.00
35.	Animal feed	1,092.33	0.00
36.	Food and beverages	11,979.75	9,956.92
37.	Tobacco products	815.12	809.34
38.	Textiles, clothing and leather	10,092.38	7,118.02
39.	Wood and furniture	1,601.13	543.71
40.	Paper, printing and publishing	2,374.20	319.58
41.	Chemicals and fertilizer	14,882.26	693.12
42.	Non-mineral products	8,144.70	5,785.72
43.	Basic metal products	19,481.73	2,012.97
44.	Electricity, gas and water	1,655.06	763.68
45.	Construction	6,960.53	6,545.26
46.	Mining and quarrying	14,424.00	13,086.40
47.	Restaurants and hotels	6,316.98	6,316.98
48.	Trade, transportation and communication	26,962.48	25,272.10
49.	Agricultural cooperative bank	349.74	394.29
50.	Other financing	1,947.59	733.58
51.	Insurance	825.64	394.29
52.	Real estate and business services	9,169.14	6,304.53
53.	Community, social and personal services	2,641.98	1,602.07
Total		170,997.01	102,619.94

Table 6.19 --- Output and hectares needed in 2000 for selected commodities under Alternative III.

Line No.	Commodity	(1) Value of gross output Mill. S.P.	(2) 1974-76 Price per k.g.a/	(3) Quantity of gross output Mill. k.g.a/	(4) 1974-76 ave. yield per irrigated hectare ^{c/}	(5) 1974-76 ave. yield per non-irrigated hectare ^{c/}	(6) Number of irrigated hectares needed ^{d/}	(7) Number of non-irrigated hectares needed ^{e/}
1	Wheat	1,564.01	.48	3,258.35	2,197	889	1,483,091	3,665,186
2	Barley	817.14	.38	2,150.37	1,647	797	1,305,628	2,698,080
5	Millet	39.80	.50	79.60	1,420	573	56,056	138,918
6	Rice	415.12	1.41	294.41	f/	f/	--	--
7	Lentils	246.07	.99	248.56	1,267	848	196,180	293,113
8	Chick peas	122.96	.92	133.65	1,166	629	114,623	212,480
13	Tomatoes	674.60	.65	1,037.85	20,145	4,663	51,519	222,571
14	Potatoes	424.58	.80	530.73	13,856	9,348	38,303	56,775
15	Dry onions	355.43	.50	710.86	18,607	6,373	38,204	111,543
17	Cotton	2,479.22	1.34	1,850.16	2,210	377	837,177	4,907,586
18	Sugar beets	237.73	.16	1,485.81	24,924	21,837	59,614	68,041
19	Tobacco	146.87	1.07	137.26	1,577	648	87,039	211,821

a/ Source: Central Bureau of Statistics. Expressed in Syrian Pounds.

b/ Equals column (1) divided by column (2).

c/ Source: Ministry of Agriculture and Agrarian Reform. The yield for wheat represents the average yield on local and Mexican wheat varieties.

d/ Equals column (3) divided by column (4).

e/ Equals column (3) divided by column (5).

f/ Not available.

To understand the requirements placed on the agricultural sector by the year 2000 under this scenario, the number of hectares that must be planted to specific crops are calculated in Table 6.19. Looking at this table, we see that 1.48 million hectares of wheat would be needed if these lands were used. To put this into perspective, about 1.6 million hectares were committed annual to wheat in Syria during the 1974-76 period. Of this total, about 1.4 million hectares were non-irrigated. An additional 1.3 million hectares of irrigated barley or 2.7 million hectares of non-irrigated barley would be needed to meet intermediate and final demand (excluding exports) for this crop in the year 2000. About 4.9 million hectares of non-irrigated land would be needed to meet the intermediate and final demand for cotton in the Syrian economy as opposed to 837,177 hectares if irrigated land was used. The hectare requirements for the other major crops in Syria are also reported in Table 6.19.

6.5.2: Alternative II Projection

Total gross output in the Syrian economy would have to be 152.4 billion S.P. under the Alternative II final demand projections, some 18.6 billion S.P. below the output needed under Alternative I. Chemical and fertilizer output would have to be 13.3 billion S.P., while basic metal products and trade, transportation and communication services would have to be 17.3 and 23.7 billion S.P., respectively.

Total agricultural output would have to be 26.7 billion S.P. in the year 2000 to meet domestic intermediate and final demands for these products. Of this total, livestock and livestock products would have to be 10.1 billion S.P. or 37.8 percent while fruit production must be 7.66 billion S.P. or 28.7 percent.

The number of hectares required to produce the major crops in Syria by the year 2000 under Alternative II are reported in Table 6.21. For example, 1.56 million hectares of irrigated land or 3.86 million hectares of non-irrigated land would be needed to produce the 3.4 billion k.g. of wheat demanded by other production sectors and consumers in Syria. The hectare requirements for barley production would be down slightly from the levels necessary under Alternative I. If all barley was grown on non-irrigated land, for example, 321,242 hectares would not be needed that were required under Alternative I. A substantial commitment would still be required for cotton. Although 590,238 fewer non-irrigated hectares would be required, 4.3 million hectares must still be used if the economy's intermediate and final demands for raw cotton are to be met using non-irrigated land. If irrigated land or some combination of irrigated and non-irrigated land is used, the hectare requirements for cotton production would drop dramatically.

Table 6.20 -- Alternative II Forecast of Gross Output and Final Demand in 2000.

Line No.	Good or Service	Total Output	Final Demand
Million Syrian Pounds			
1.	Wheat	1,645.47	1,218.72
2.	Barley	719.82	4.94
3.	Oats	4.51	0.00
4.	Corn	39.82	0.00
5.	Millet	35.58	4.50
6.	Rice	399.20	396.21
7.	Lentils	230.83	173.58
8.	Chick peas	115.14	71.91
9.	Dry broad beans	36.44	25.92
10.	Rambling vetch	43.44	0.00
11.	Bitter vetch	127.53	2.37
12.	Other dry legumes	62.83	19.65
13.	Tomatoes	644.77	489.65
14.	Potatoes	411.30	252.30
15.	Dry onions	345.34	161.78
16.	Other fresh vegetables	728.78	662.05
17.	Cotton	2,181.04	91.50
18.	Sugar beets	209.60	0.00
19.	Tobacco	129.40	2.44
20.	Sun flowers	1.67	0.50
21.	Sesame	347.96	0.50
22.	Ground nuts	14.42	0.80
23.	Other industrial crops	16.58	7.90
24.	Grazing	38.18	0.00
25.	Fruits	7,655.93	6,653.80
26.	Other crops	368.80	309.33
27.	Poultry	1,285.17	930.39
28.	Sheep fattening	1,832.39	150.60
29.	Sheep breeding	2,418.16	50.00
30.	Cows, calves and buffalo	1,468.52	160.74
31.	Goats	481.74	196.20
32.	Other livestock products	632.81	146.00
33.	Milk and milk products	1,729.46	1,187.59
34.	Forestry	294.63	0.00
35.	Animal feed	954.38	0.00
36.	Food and beverages	10,556.32	8,759.52
37.	Tobacco products	717.10	712.01
38.	Textiles, clothing and leather	8,905.39	6,262.01
39.	Wood and furniture	1,411.16	478.32
40.	Paper, printing and publishing	2,086.63	281.15
41.	Chemicals and fertilizer	13,331.09	609.77
42.	Non-mineral products	7,164.51	5,089.94
43.	Basic metal products	17,309.06	1,770.89
44.	Electricity, gas and water	1,479.49	671.84
45.	Construction	6,124.10	5,758.13
46.	Mining and quarrying	12,731.14	11,512.60
47.	Restaurants and hotels	5,557.31	5,557.31
48.	Trade, transportation and communication	23,741.27	22,232.90
49.	Agricultural cooperative bank	772.52	346.88
50.	Other financing	1,723.27	693.75
51.	Insurance	728.02	346.88
52.	Real estate and business services	8,070.45	5,546.36
53.	Community, social and personal services	2,327.46	1,409.41
Total		152,387.89	91,411.54

Table 6.21 -- Output and hectares needed in 2000 for selected commodities under Alternative II.

Line No.	Commodity	(1) Value of gross output Mill. S.P.	(2) 1974-76 Price per k.g. ^{a/}	(3) Quantity of gross output Mill. k.g.	(4) 1974-76 ave. yield per irrigated hectare ^{c/}	(5) 1974-76 ave. yield per non-irrigated hectare ^{c/}	(6) Number of irrigated hectares needed ^{d/}	(7) Number of non-irrigated hectares needed ^{e/}
1	Wheat	1,645.47	.48	3,428.06	2,197	889	1,560,337	3,856,086
2	Barley	719.82	.38	1,894.34	1,647	797	1,150,176	2,376,838
5	Millet	35.58	.50	71.16	1,420	573	50,113	124,189
6	Rice	399.20	1.41	283.12	f/	f/	--	--
7	Lentils	230.83	.99	233.16	1,267	848	184,025	274,953
8	Chick peas	115.14	.92	125.15	1,166	629	107,333	198,967
13	Tomatoes	644.77	.65	991.95	20,145	4,663	49,241	212,728
14	Potatoes	411.30	.80	514.13	13,856	9,348	37,105	54,999
15	Dry onions	345.34	.50	690.68	18,607	6,373	37,119	108,376
17	Cotton	2,181.04	1.34	1,627.64	2,210	377	736,489	4,317,348
18	Sugar beets	209.60	.16	1,310.00	24,924	21,837	52,560	59,990
19	Tobacco	129.40	1.07	120.93	1,577	648	76,684	186,620

a/ Source: Central Bureau of Statistics. Expressed in Syrian Pounds.

b/ Equals column (1) divided by column (2).

c/ Source: Ministry of Agriculture and Agrarian Reform. The yield for wheat represents the average yield on local and Mexican wheat varieties.

d/ Equals column (3) divided by column (4).

e/ Equals column (3) divided by column (5).

f/ Not available.

6.5.3: Alternative III Projection

Total gross output in Syria would have to be only 77.9 billion S.P. in the year 2000 to meet the domestic demand for goods and services under this scenario. This is substantially below the 152.4 billion S.P. gross output needed under Alternative II and the 171 billion S.P. gross output needed under Alternative I. The output of the food and beverages (FODBEV) sector, for example, would have to be only 5.0 billion S.P. as opposed to 12.0 billion S.P. under Alternative I. The basic metal products (BSCMTL) sector would have to produce only 8.7 billion S.P. worth of products rather than the 19.5 billion S.P. output required under Alternative I. And the need for trade, transportation and communications services would be less than one-half the services required under the Alternative I scenario.

Total agricultural output would have to be 17.04 billion S.P. under Alternative III, some 11.8 billion S.P. below Alternative I. Total production of livestock and livestock products must be 4.85 billion S.P., while fruit production would have to be 6.03 billion S.P. to satisfy both intermediate and final demand. The hectares required to produce specific crops in the year 2000 under this scenario are reported in Table 6.23.

6.5.4: Summary

Once again it is Alternative I that places the greatest strain on the capacity of the Syrian economy to meet the domestic demand for its goods and services. If the Syrian government has hopes of exporting specific commodities, the capacity of those sectors that produce these commodities will be strained even further. It is important to recall some of the assumptions underlying these projections expressed earlier in section 6.3.1. For example, we have assumed that the production processes used to produce goods and services in the 1970s will remain unchanged by 1985 and the year 2000. To the extent that the relative use of specific inputs changes, their direct requirements and hence intermediate demands for goods and services produced by other sectors will differ from those projected in this report. Secondly, we assumed that the production capacities of each sector would not limit its ability to meet the intermediate and final demand for its products. The purpose of these projections, however, was to show what the output of each production sector would have to be in 1985 and 2000 rather than what the potential output of the economy and its sectors will be. As pointed out earlier in section 6.3.5, this issue can easily be addressed with the planning model developed in this study once these capacities are known. That is, the production capacities of the individual sectors can serve as upper bounds in a constrained solution of the planning model to show what the potential output and domestic product of the economy can be in these years.

Table 6.22 - Alternative III Forecast of Gross Output and Final Demand in 2000.

Line No.	Good or Service	Total Output	Final Demand
Million Syrian Pounds			
1.	Wheat	1,626.11	1,334.88
2.	Barley	345.74	6.46
3.	Oats	2.13	0.00
4.	Corn	18.82	0.00
5.	Millet	19.17	4.50
6.	Rice	305.96	304.56
7.	Lentils	218.29	191.20
8.	Chick peas	100.99	71.64
9.	Dry broad beans	31.04	24.49
10.	Rambling vetch	21.64	0.00
11.	Bitter vetch	64.23	2.23
12.	Other dry legumes	41.23	18.56
13.	Tomatoes	461.76	375.13
14.	Potatoes	333.05	205.32
15.	Dry onions	262.82	123.88
16.	Other fresh vegetables	556.29	506.88
17.	Cotton	1,062.66	64.67
18.	Sugar beets	99.37	0.00
19.	Tobacco	61.22	1.80
20.	Sun flowers	1.06	0.50
21.	Sesame	164.96	0.50
22.	Ground nuts	7.28	0.80
23.	Other industrial crops	10.00	5.81
24.	Grazing	19.41	0.00
25.	Fruits	6,031.01	5,270.00
26.	Other crops	248.14	218.15
27.	Poultry	485.14	327.77
28.	Sheep fattening	890.26	94.30
29.	Sheep breeding	1,221.37	31.35
30.	Cows, calves and buffalo	738.03	64.11
31.	Goats	267.47	116.40
32.	Other livestock products	317.06	86.70
33.	Milk and milk products	930.72	674.34
34.	Forestry	140.21	0.00
35.	Animal feed	426.44	0.00
36.	Food and beverages	4,996.11	4,098.69
37.	Tobacco products	335.55	333.16
38.	Textiles, clothing and leather	4,259.82	2,930.08
39.	Wood and furniture	668.35	223.81
40.	Paper, printing and publishing	970.37	131.55
41.	Chemicals and fertilizer	7,038.54	285.32
42.	Non-mineral products	3,350.69	2,381.65
43.	Basic metal products	8,681.22	828.62
44.	Electricity, gas and water	771.58	314.36
45.	Construction	2,867.72	2,694.30
46.	Mining and quarrying	6,100.26	5,386.90
47.	Restaurants and hotels	2,600.34	2,600.34
48.	Trade, transportation and communication	11,181.24	10,403.10
49.	Agricultural cooperative bank	447.44	162.31
50.	Other financing	840.62	324.62
51.	Insurance	346.15	162.31
52.	Real estate and business services	3,790.94	2,595.21
53.	Community, social and personal services	1,099.32	659.48
	Total	77,877.31	46,642.74

Table 6.23 -- Output and hectares needed in 2000 for selected commodities under Alternative III.

Line No.	Commodity	(1) Value of gross output Mill. S.O.	(2) 1974-76 Price per k.g. ^{a/}	(3) Quantity of gross output Mill. k.g.	(4) 1974-76 ave. yield per irrigated hectare ^{c/}	(5) 1974-76 ave. yield per non-irrigated hectare ^{c/}	(6) Number of irrigated hectares needed ^{d/}	(7) Number of non-irrigated hectares needed ^{e/}
1	Wheat	1,626.11	.48	3,387.73	2,197	889	1,541,980	3,810,720
2	Barley	345.74	.38	909.84	1,647	797	552,423	1,141,581
5	Millet	19.17	.50	38.34	1,420	573	27,000	66,911
6	Rice	305.96	1.41	216.99	f/	f/	--	--
7	Lentils	218.29	.99	220.49	1,267	848	174,025	260,012
8	Chick peas	100.99	.92	109.77	1,166	629	94,142	174,515
13	Tomatoes	461.76	.65	710.40	20,145	4,663	35,264	152,348
14	Potatoes	333.05	.80	416.31	13,856	9,348	30,046	44,535
15	Dry onions	262.82	.50	525.64	18,607	6,373	28,250	82,479
17	Cotton	1,062.66	1.34	793.03	2,210	377	358,837	2,103,528
18	Sugar beets	99.37	.16	621.06	24,924	21,837	24,918	28,441
19	Tobacco	61.22	1.07	57.21	1,577	648	36,278	88,287

^{a/} Source: Central Bureau of Statistics. Expressed in Syrian Pounds.

^{b/} Equals column (1) divided by column (2).

^{c/} Source: Ministry of Agriculture and Agrarian Reform. The yield for wheat represents the average yield on local and Mexican wheat varieties.

^{d/} Equals column (3) divided by column (4).

^{e/} Equals column (3) divided by column (5).

^{f/} Not available.



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